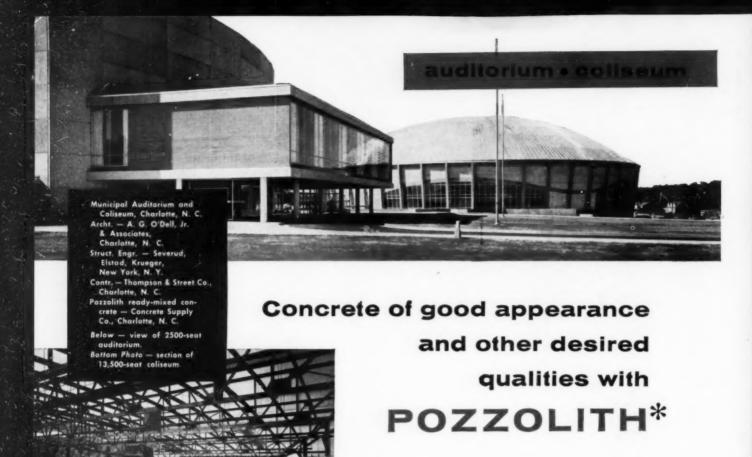
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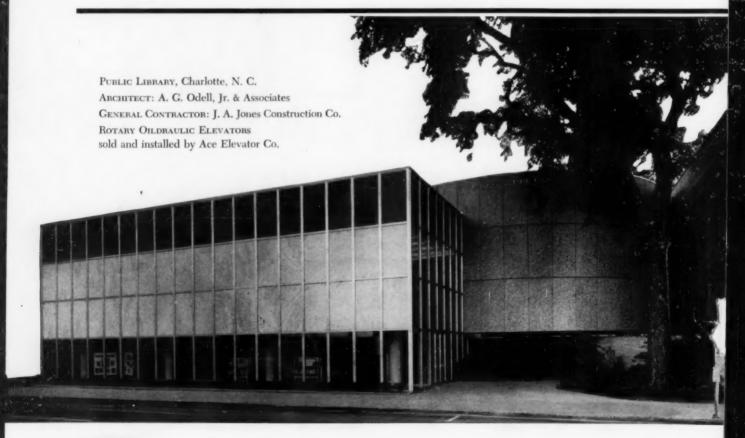
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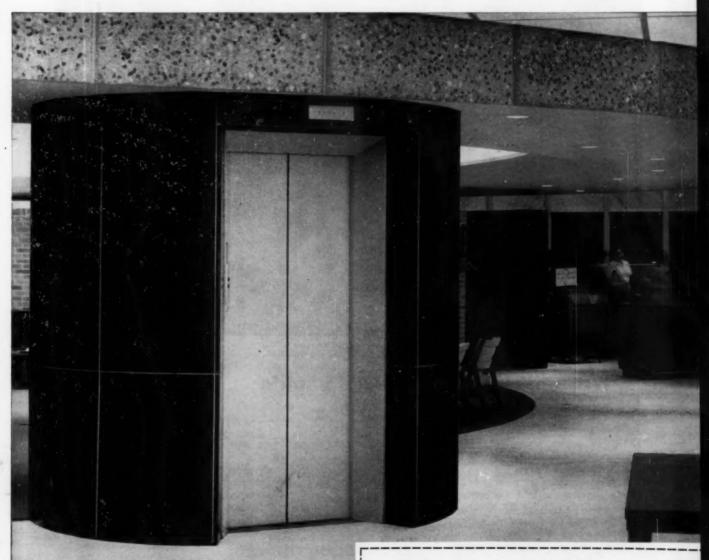
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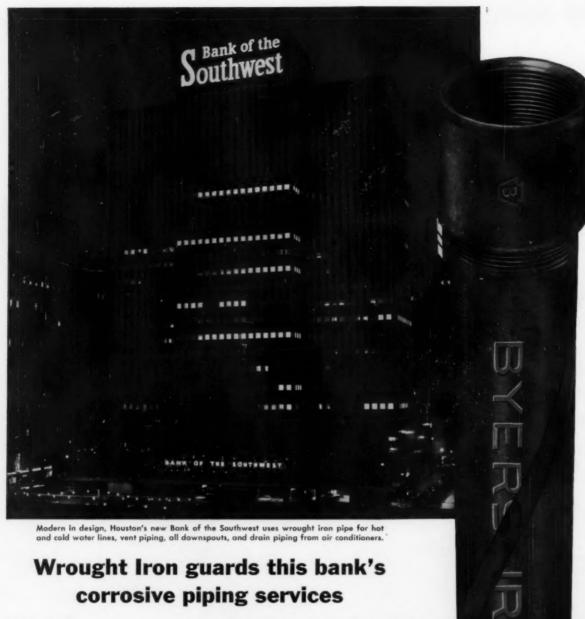
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### ARCHITECTURAL RECORD

November 1957 Vol. 122 No. 5

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COVER: De Bijenkorf Department Store, Rotterdam; Marcel Breuer and A. Elzas, Architects; Sculpture by Naum Gabo; Frits Monshouwer photo

#### Rectangular Houses

Shape is the most pervading of the visual characteristics of a house, and is commonly neglected in planning. Here is a group of houses which achieve simplicity if not greatness by maintaining a comprehensible, satisfying shape.

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A PREVIEW OF FUTURE CONSTRUCTION POTENTIALS WITH PARTICULAR REFERENCE TO THE YEAR 1958

### **BUMPING ALONG FROM PEAK TO PEAK**

THOMAS S. HOLDEN, Vice Chairman; with the collaboration of GEORGE CLINE SMITH, Vice President and Economist, CLYDE SHUTE, Assistant Vice President and Director of Statistical Policy, and EDWIN W. MAGEE, JR., Associate Economist

By

F. W. DODGE CORPORATION

ARCHITECTURAL RECORD
NOVEMBER 1957

#### **BUMPING ALONG FROM PEAK TO PEAK**

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VIEWED FROM THE HIGH LEVELS previously achieved neither the peaks arrived at in general business activity nor those reached in particular sectors of the construction industry in 1957 seemed too impressive to the general public. Progress was made; but it came about in spite of continued inflation, continued tight credit, comparatively low volumes of automobile and housing production, falling stock prices and much confusion in the political field. It was frequently said that the boom was "tired"; business sentiment was generally apprehensive rather than exuberant.

Total output of goods and services (gross national product) increased steadily through the year. In the third quarter it reached the annual rate of \$439 billion, compared with \$417 billion in the third quarter of 1956; the increase was partly but not entirely due to price rises. From mid-1956 to mid-1957 total personal income and total personal consumption expenditures both increased by about five per cent. Civilian employment continued at record or near-record levels. Steel production in the first nine months of this year exceeded all previous records for like periods, though there seems to be some doubt as to whether this rate of activity will be maintained through the final quarter of the year.

For the thirteenth consecutive year an all-time peak is being reached in dollar volume of contracts for new construction, although the physical volume has run just about even with the preceding year. Actually, total building floor space is running an estimated two per cent behind 1956, but there is some offsetting gain in physical volume of heavy engineering construction, The total 1957 dollar volume of building and engineering contracts, at an estimated \$32,108,000,000, is a two per cent gain over 1956.

This not very spectacular peak naturally reflects mixed trends among the various categories of building and engineering projects. Peak dollar volumes of contracts were recorded for the following major classifications: commercial buildings, educational buildings, hospitals, religious buildings, public works and public utilities. There were moderate declines in dollar contract volume of manufacturing buildings, public buildings, social and recreational projects, miscellaneous nonresidential and residential buildings.

#### HOUSING AND HOUSING PROSPECTS

Non-farm housing starts this year will reach a total very close to a million units. Although larger than any annual total previous to 1949, this is nowadays looked upon as a rather unsatisfactory volume. In fact, it was a drop of 10 per cent from 1956 and a full 25 per cent behind the near-record housing rate of 1955. Since residential building is customarily the largest single category in the whole construction picture, since it affects many industries, businesses and individuals, and since its trends command wide attention in the daily and business press, many people seem to look upon housing as the whole construction industry. But even this major activity should be viewed in its right relationship to construction activity as a whole.

While mounting costs have tended to narrow somewhat the market for new housing, a more important factor in the recent two-year decline has been tight money. Rising interest rates made investments in bonds and conventional mortgages much more attractive to lending institutions than government-insured mortgages with their prevailing limitations on interest rates, Lending on VA-insured mortgages almost petered out, and lending on FHA-insured mortgages declined steadily until the terms were liberalized in the middle of this year.

Conventional home mortgages, with flexible interest rates, continued at practically level volume. These loans generally require larger down payments than government-insured mortgages and are used to finance purchases of houses in middle and high cost ranges, the types that predominated in the 1957 housing market. In contrast, the record housing activity of 1950 and the near-record activity of 1955 had been financed with vast numbers of low downpayment government insured loans.

It was thought early in 1957 that Congress would act speedily to revitalize the market for VA-insured loans by lifting the ceiling on interest rates. This Congress did not do, and in consequence the VA-insured mortgage has ceased to be an active factor in the housing market. It seems entirely possible that the veterans' housing program may be permitted to expire as scheduled in 1958.

FHA did raise its permissible interest rates slightly,

and Congress amended the National Housing Act to permit lower down-payments on FHA-insured loans. While so doing Congress placed a fairly tight restriction on the amount of discount permitted on the sale of FHA-insured mortgages, thus limiting somewhat the effectiveness of the liberalized terms in encouraging a steady flow of investment into this channel. Congress will probably be asked to ease this restriction.

The relief given by Congress to the home mortgage situation was somewhat too little and too late to affect 1957 housing volume in any large measure, though more pronounced results are expected in 1958. Our estimate, made last year, of moderately increased housing volume in 1957 was based upon the assumption of early action by Congress. This action came later than expected; the result is that while the upturn came, it was delayed, and the total volume of housing activity for the year will show a decline from the 1956 level rather than the estimated increase.

The 1958 housing market will benefit from the liberalized down-payment terms on FHA-insured loans and also from two other factors. First, individual savings have increased. The Securities and Exchange Commission has reported that Americans put away \$9.2 billion in savings during the first six months of 1957, more than in any first half in over a decade, about 24 per cent more than in the first half of 1956. In the second place, next year's expected decline in business investment in new plant and equipment will ease the competition for funds as between housing projects and industrial expansion programs,

Potential housing demand continues strong. Population continues to grow by the addition of three million persons annually, household formations continue at relatively high rates, housing vacancies continue abnormally low. To ordinary demolitions are added growing numbers occasioned by the national highway and urban renewal programs,

There was in 1957 a marked upturn in multifamily housing projects, after several years of decline. Considering the low vacancies that have been reported for rental housing, this upturn should be the forerunner of further increases in apartment building.

#### TWO MAJOR NATIONAL PROGRAMS

Two major national programs with big potentials for the future made substantial headway in 1957. They are the national highway program and the nationwide urban renewal program.

Total expenditures for new highway construction during this calendar year will amount to \$4,900,000,000, or perhaps \$5,000,000,000. The increase over 1956 will be 10 per cent or better; and the total

will be nearly double the figure for 1951, when a continuous rise in annual totals began. This year's gain is a bare start on the enlarged national highway program authorized by Congress in 1956. The program calls for increasing annual spending for highway construction up to the range of eight to ten billion dollars. It has been stated that the national highway program aims to construct in 15 years approximately the same mileage the Romans, great highway builders of antiquity, accomplished in five centuries.

Beyond the huge volume of anticipated road construction are the supplementary demands for facilities which the highway program will generate. It is estimated that 90,000 to 100,000 families will have to be relocated by reason of demolitions along rights of way; there will also be considerable relocation of business enterprises. Fourteen per cent of the programmed mileage will be in urban areas, but the cities will have to go far beyond the amount of the Federal aid they will receive for access roads, new street patterns, expressways and other adaptations of the communities to the interurban highway network. Continued movements of families, businesses and industries to suburban areas will be matched by large-scale redevelopment of downtown sections.

Wholesale relocations of families and businesses are also taking place where urban renewal programs are causing building demolitions in blighted areas. Federal aid for relocation housing is being extended to local communities on a sizeable scale. While the national urban renewal program is not formally related to the national highway program in Federal enactments or administration, coordination by local planning agencies of renewal programs with new highway developments is obviously called for and will in most cases be worked out.

Under the urban renewal program Federal advances are made to local governments to meet planning costs; the Urban Renewal Administration is also authorized to reimburse to any city which carries forward an approved program two thirds of any losses incurred by acquisition and resale of property in blighted areas to be redeveloped. Housing Administrator Albert M. Cole recently announced that more than 300 localities—cities, towns, townships and counties—have qualified for Federal assistance by presenting "workable programs" for approval; in addition, as of last August, 183 specific urban renewal projects had been approved for execution under Title 1 of the Housing Act as amended in 1954.

These two nationwide long-range programs for highways and redevelopment will be major forces in changing the physical pattern of the United States in order to accommodate by 1975 a population of some 225,000,000 persons who will then own and operate

some 100,000,000 motor vehicles. These are therefore continuing large scale construction programs not subject to serious interruption except by some major crisis, but very likely to gain momentum during the next several years.

#### COMMUNITY IMPROVEMENTS

Strong demands for hospitals, churches, school and college buildings continue unabated, even after the record volumes of recent years. In the school field, demands for high school buildings have become very pressing; these are usually buildings of more costly type than grade schools. Some school building programs have been waiting for possible Federal aid, some have been deferred by reason of bond issues not being voted, some are being restudied in the interest of economy. Colleges are working on expansion programs and planning money-raising drives for financing required new buildings.

With current rates of population growth and community change, demand for enlarged and improved community facilities naturally continues very strong. This applies to retail shopping facilities, as well as to parking lots and parking garages, water supply, sewers, gas and electric utilities and all the other customary improvements. A favorable prospect for a continued large volume of public construction has been shown in this year's high total of state and municipal financing. According to "The Daily Bond Buyer," municipal bond sales in the first nine months of 1957 aggregated more than \$4.97 billion; the increase over the like 1956 period was 22 per cent and the total for the year will crowd closely on the heels of the all-time record of the year 1954.

In the aggregate, potential construction demand is being continually pushed ahead by the pressures of economic growth. This is naturally the main factor in appraising the construction outlook. However, the speed of advance in 1958, the types of building and engineering projects which will show further increases and the types that may decline, are all very much subject to immediate forces in the general economic picture.

#### THE DECLINE IN STOCK PRICES

A factor which has contributed heavily to the prevailingly uneasy tone of business sentiment has been the decline, practically continuous through the year, in stock market prices. Whether this has much weight in appraising the construction prospect is uncertain. Anticipation of reduced business profits led to a widespread belief that common stocks were gen-

erally overvalued; at the same time, rising interest rates and improved bond yields enhanced the attractiveness of investments in bonds. Large scale shifts from stocks to bonds naturally resulted. Since, however, very little of the trading was done with borrowed money, breaks in stock prices have not brought about such wholesale liquidation of bank loans as produced financial crises many times in the past. The stock market decline will likely influence the decisions of industrial and public utility organizations in the programming of their expansion programs. This factor might also tend to discourage in some degree investment in new office building projects.

#### **ECONOMISTS' OPINIONS ABOUT 1958**

Of broader significance, probably, for appraisal of the construction outlook are the assembled opinions of the nation's leading economists on likely business trends in 1958. F. W. Dodge Corporation rates highly its annual economists' survey, the latest of which has just been reported.

While there were wide ranges of opinions expressed in the replies to the various questions asked, they have been summarized as indicating for the coming year very moderate changes from 1957, with in most cases, a slight upward movement in the major indicators. Increases of around two per cent are indicated for gross national product and personal consumption expenditures. Industrial production, wholesale prices and consumer prices are expected to move very slightly upward; wages are expected to increase across the board in unspecified amounts, Total new construction expenditures are expected to equal the 1957 level; private new non-farm housing starts are expected to increase three to four per cent; new plant and equipment expenditures are expected to decline three to four per cent.

On the whole the opinion survey seems to express a preponderantly cautious attitude, with the scales tipped only slightly on the optimistic side. These surveys have generally proved in the past to be reasonably reliable guides, leaning somewhat in the direction of conservatism.

#### **CONTRACT ESTIMATES ON 48-STATE BASIS**

For the first time F. W. Dodge Corporation is presenting construction outlook estimates based on its new 48-state statistical coverage of construction contracts. The advantage in comprehensiveness over previous contract statistics and previous outlook estimates is obvious.

Contract figures are of particular importance to observers of business trends in that they anticipate

TABLE 1: ESTIMATED DOLLAR VOLUME OF CONSTRUCTION CONTRACTS

(48 states; figures in millions of dollars)

CLASSIFICATION	YEAR 1957 ESTIMATE*	YEAR 1958 ESTIMATE	PERCENTAGE CHANGE †
TOTAL PRIVATE AND PUBLIC OWNERSHIP			
Nonresidential	11455	11570	+ 1
Residential	12725	13760	+ 8
Total Building	24180	25330	+ 5
Public Works and Utilities	7928	8500	+ 7
Total Construction	32108	33830	+ 5
PRIVATE OWNERSHIP	20700	21830	+ 5
PUBLIC OWNERSHIP	11408	12000	+ 5

#### TABLE 2: ESTIMATED PHYSICAL VOLUME OF BUILDING

(48 states; figures in millions of sq ft)

BUILDING CLASSIFICATION	YEAR 1957 ESTIMATE*	YEAR 1958 ESTIMATE	PERCENTAGE CHANGE †
Commercial	245	235	- 4
Manufacturing	180	170	<b>—</b> 6
Educational and Science	208	216	+ 4
Hospitals and Institutions	40	42	+ 5
Public	26	24	— 8
Religious	51	53	+ 4
Social and Recreational	29	26	-10
Miscellaneous Nonresidential	33	30	_ 9
Total Nonresidential	812	796	<b>– 2</b>
Residential	1163	1224	+ 5
Total Building	1975	2020	+ 2

New Non-farm Dwelling Unit

Starts (BLS Basis) .......1,010,000 1,075,000 + 6

<sup>\*</sup>Eight months actual, last four months estimated. Percentages rounded to nearest whole number

actual construction activity. Contracts precede placement of orders for materials and employment of construction workers. They have a particular significance for marketing men and economists. The very thorough business cycle studies of the National Bureau of Economic Research established two Dodge series of construction contract figures as being among the eight most important early indicators of cyclical changes: the two series being new residential floor space contracted for and combined new commercial and industrial floor space.

On the other hand, the work-in-place figures compiled jointly by the Departments of Commerce and Labor represent construction activity that has already taken place. The purpose of this compilation is less to indicate future construction market trends than to produce a complete overall estimate for inclusion in the aggregate gross national product figure. Work-in-place figures consist entirely of estimates, the estimates being based, of course, upon factual data,

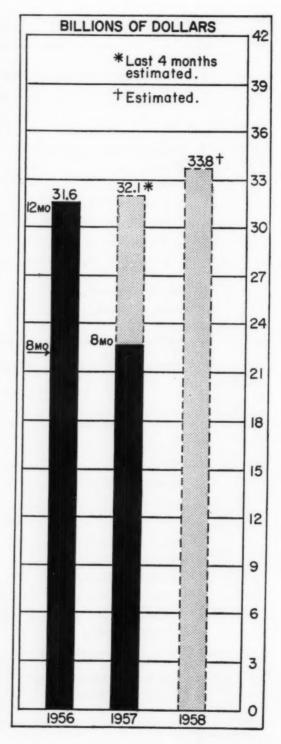
To meet the requirement of all-inclusiveness the work-in-place figures contain estimates for a number of categories of activities which are not regularly recorded in the form of monthly compilations of project data collected in the field. These special categories include, principally, the following: farm building, which is not covered by the Dodge figures; force account work, which is non-maintenance construction done without letting a contract but by a directly employed staff of a business or a governmental agency, a type of work only partially covered by Dodge; residential building additions and alterations, the vast majority of which are small unit operations falling below the Dodge valuation minimum.

These differences largely account for the fact that the expanded Dodge contract coverage produces somewhat lower aggregate totals than the work-in-place estimates of the government.

#### THE 1958 OUTLOOK

The signs and omens for next year seem to point to mild improvement in the construction picture as a whole, with some variations in detail. The accompanying tables tell the story of the 1958 outlook as we see it on November 1, 1957.

For total building and engineering contracts in the 48 states, we estimate \$33,830,000,000 for 1958; this would be an increase of five per cent over this year. Dollar volume of nonresidential building contracts is estimated to increase one per cent; residential building contracts, to increase eight per cent; total building contracts, five per cent; public works and utilities contracts seven per cent. Public and private ownership projects are expected to share proportionately in such increases as take place.



BUILDING AND ENGINEERING CONTRACTS, 48 states (as recorded by F. W. Dodge Corporation)—The indication for 1958 is a continuation of the postwar uptrend in total contracts.

Since some further rises in construction costs are anticipated, physical volumes are likely in some cases to increase by somewhat smaller percentages than dollar volumes. In Table 2 the physical volume estimates for major building classifications are shown. Increases are estimated for educational buildings, hospitals, religious buildings, and residential buildings. Moderate declines are indicated for commercial, manufacturing and public buildings, social and recreational projects, and miscellaneous nonresidential buildings.

We estimate an increase of six per cent in the

number of new non-farm dwelling unit starts,

Conspicuous in any rise in the heavy engineering category would be increased expenditures for new highway construction. Highway construction volume is almost certain to reach a new peak. So also will educational, hospital and religious buildings if the estimates here shown are realized. The total construction contract figure is also estimated to reach a peak next year. Whether the new peaks will seem impressive will depend upon the particular sector of the construction industry from which they are viewed.

#### MODEST BUSINESS RISE IN 1958 FORESEEN BY LEADING ECONOMISTS

Composite Opinion of 202 Leading Economists Polled by F. W. Dodge Corporation in October 1957

BY GEORGE CLINE SMITH, VICE PRESIDENT AND ECONOMIST, F. W. DODGE CORPORATION

THE LEADING ECONOMISTS polled by F. W. Dodge Corporation in its latest annual opinion survey are numerically optimistic but verbally cautious. What this means in plain English is that while they forecast general increases in the major economic indicator series, their comments indicate considerable concern over the outlook for the next year.

The trend of the numerical estimates given by the 202 economists in reply to nine questions calling for specific figures on the principal economic indicator series is not greatly different from last year's survey. But there is a decided difference in the tone of the comments which the economists added to their ques-

Note: Sputnik appeared on the horizon during the period when the economists were mailing in their questionnaires. A little later, violent turbulence overtook the stock market. Because of these events, it was decided to make a telegraphic re-check of a 20 per cent random sample of the economists. This was done on October 24. Nearly all of the economists resurveyed said they would not change their estimates if they had been filling out the questionnaire at the later date. One said that he thought the first quarter of 1958 would be unfavorably affected, but that the forecast for the rest of the year would remain unaffected. Two others said they would shave "moderate" amounts from their output estimates. The remainder—the vast majority—said they would not change their estimates,

tionnaires. There was a general feeling in last year's survey that 1957 would be an all-time record year. In the current survey, while the figures estimated would for the most part be at new record levels, the comments paradoxically take little note of this fact.

Instead, the words "decline" and "recession" appear in the comments with some frequency, and none of the comments expresses real optimism for the immediate future.

It is difficult to boil down the collective thinking of 202 economists into a composite, but the apparent paradox between the generally increasing numerical estimates and the less optimistic tone of the comments seems to arise from the general feeling that the dollar indicators will rise modestly next year largely, if not entirely, due to inflation. In other words, in real terms we may experience what several economists referred to as a "sidewise movement." This is consistent with the general estimate that prices and wage rates will go up, while industrial production (as measured in real rather than dollar terms) will change very little in 1958. As an explanation of this phenomenon, several comments referred to "built-in inflationary forces" in the economy, with particular emphasis on wage inflation.

Typical of many comments was one from the economist for a large manufacturer, who said: "1958 seems to be shaping up as a year of severe strain on the economy in some directions. Pressure on corporate profits will result in a reduction of expenditures for plant and equipment. Consumers will probably keep on spending for most soft goods and new houses."

This comment calls attention to the rather surprising fact that many of the economists look upon housing (at even the relatively low rate of only a million non-farm starts a year) as an element of strength. Consumer spending, however, was generally looked upon as the main "up factor" in the economy.

The comments on the questionnaires point up clearly the principal uncertainties in the near-term future. Among those most frequently mentioned were:

- § The possibility that 1958 will, in contrast to 1957, be a "strike year."
- § Monetary policy in general, and Federal Reserve policy in particular.
- § Possible reduction of defense spending. (Many comments expressed skepticism that cuts would actually become effective.)
- § The stock market was mentioned by a few economists as an extremely uncertain factor.
- § The question of whether or not income taxes would be cut next year, and the further question of whether corporate income taxes would be reduced even if individual taxes were lowered.

A selection of the large number of thought-provoking comments is presented below, along with the other material from the survey. But a few of the comments ought to be singled out for special attention as being especially worth pondering at this time.

One public utility economist calls attention to the fact that reasoning from the general to the particular may be especially dangerous. "Regional variations during 1958 are likely to encompass greater degrees of deviation from the national pattern than has been the case in recent years."

And a bank economist makes a deduction based on forecasters: "Perhaps the most important conclusion that can be drawn is that the caution of the forecasters is the result of caution within industry."

Probably the comment that comes closest to summarizing the general feeling is from the economist for a manufacturing company who said: "The national economy is now definitely in the interim period between the postwar expansionary boom of the past decade and the resurgence of activity a few years hence when research, obsolescence, and population factors will provide a new basis for strong forward movement . . . Hence 1958 promises to be a year of limited growth with gains largely confined to dollar measures reflecting further moderate inflationary developments . . . Inflation is still the nation's No. 1 economic problem, but in 1958 lack of growth—with all its manifestations — will emerge as the key problem."

The economists participating in the current survey include 24 in financial organizations and insurance companies, 77 from other business firms, 48 from colleges and universities, and 14 from government; the remaining 39 are consultants or members of trade and research organizations.

#### **GENERAL COMMENTS**

Comments on specific questions are included with discussion of those questions below. A large number

of respondents commented on the general business outlook, and the following quotations are typical of the views expressed:

"In general, 1958 will be a year of sidewise movement for the economy as a whole, with strong and weak spots more or less offsetting each other, and with the upward drift in prices continuing, perhaps at a reduced rate."

"High hopes are placed on the performance of the auto industry, but I doubt that this industry can live up to expectations. When that is realized, beyond any further doubt, we shall be in for a small recession, such as took place in 1946, 1949 and 1953-54. We may well be pulling out of it by the end of 1958. It should not be serious except perhaps in terms of the 1958 elections."

"A relaxation of the restrictive credit policy is assumed by the early weeks of 1958. Otherwise, the recession could be a good deal more pronounced."

"The big imponderable is the national psychology re fear, security and concern over inflation. A tug-of-war is developing, subconsciously, between individual security with respect to material well-being, and national security in world matters dominated by Russia and our 'big-stick,' dry powder techniques."

"Lack of optimism pervades the forecast field at this time
.... Whether enough consumer spending will take place
to offset a decline in the business spending sector, or whether
fiscal authorities relax availability of credit in light of the
presence of inflationary pressures to enable business to expand profitably, remains to be seen."

"Business activity very likely to experience a clear cyclical turn in 1958 with a moderate downward drift in full sway as the year closes."

"The 'bugaboo' these days in forecasting is the proper evaluation of activity on a physical rather than a \$ basis."
"Signs point to a plateau for a year assuming tight money

policy continued. A new boom could be started immediately by easy money."

#### **DETAILS OF REPLIES**

The economists surveyed were asked to present specific forecasts for the remainder of 1957 and for 1958 for several major economic indicators. A total of 202 economists replied. A few omitted replies to some parts of some questions, but there were more than 194 replies to each part of every question.

Presentation of the results of a survey of this sort in a condensed form poses some problems. We have in the past reported the median estimates together with the range of forecasts, where appropriate, and a selection of the comments. In response to many requests, we are also attempting this year to describe the pattern of the trends forecast on four of the questions, to give some indication of the economists' thinking as to whether increases or decreases will be steady or variable.

#### 1. GROSS NATIONAL PRODUCT

On the average, the economists expect a leveling

off in the dollar output of goods and services in the fourth quarter of 1957 and the first quarter of 1958 at about \$440 billion (seasonally adjusted annual rate) with a steady rise thereafter to \$449 billion at the end of 1958. This would be an increase of about three per cent over the second quarter 1957 figure (which was the latest one available at the time the questionnaire was printed), and an increase of about two per cent during 1958. The economists were very much in agreement that GNP would rise, with well over 80 per cent of the respondents forecasting higher levels by the end of 1958. Practically none foresaw any severe drop. Only five set the figure for the end of 1958 at \$420 billion or less; in contrast, 27 put the figure at \$460 billion or more.

With regard to the pattern of change, 59 per cent estimated a steady increase in GNP during 1958. Another 16 per cent felt that there would be a dip in the first half, followed by an increase in the second half. The remainder were scattered among various other combinations, with no particular concentration on any one pattern.

COMMENTS: "General stability of the physical volume of business and a moderate increase in GNP." / "Upward trend of GNP is expected to continue through the balance of the year and through 1958, but the rate of increase is likely to diminish throughout this period." / "General economic activity during 1958 will taper off moderately. It may be more accurate to describe this situation as a leveling plateau of business activity." / "We expect final demand to remain strong in the months to come and to continue to advance in 1958. Government spending will be up, not down, Moderate defense cutbacks will be offset by non-defense expenditures on the Federal level. State and local spending will be up by about \$3 billion. / "Very slow rise in total economic activity is probable in 1958 . . . Unemployment should be above the levels of 1956 and 1957." | "Increasing labor costs, coupled with lowered productivity and extravagance in consumption, seem to be running a race with technological advance. But meanwhile other nations with a keener urge to produce (already Germany, perhaps Japan, eventually Russia, China, India) may take the leadership because of lower real costs."

#### 2. PRICES

Cost of Living - Practically all of the economists think the BLS consumer price index at the end of this year will be above the level of mid-1957. The median forecast for December 1957 is 121.5, as compared with 120.2 last June, While the median forecast rises to 122 for next June and 123 for December 1958, the degree of unanimity lessens somewhat, as a sizeable number (21 per cent) think the December 1958 figure will actually be below the mid-1957 level. Nevertheless, most of the economists think the index will rise; and 30 per cent went so far as to put the December 1958 figure at anywhere from 124 to 128.

As to the pattern of increase or decrease in 1958,

a bare majority (51 per cent) think there will be a steady increase in consumer prices in 1958. Another 10 per cent think there will be a rise in the first half, with a leveling in the second half, while eight per cent think the first half will be steady, with a rise in the second half. On the other hand, 13 per cent held out for a steady decrease in 1958, and the remainder foresaw various other patterns,

Wholesale Prices — The economists took a considerably less inflationary view of wholesale prices. In July of this year, the BLS wholesale price index stood at 118.1. The median forecast of the economists is that it will rise steadily but almost imperceptibly to 119.2 at the end of 1958. There is not a high degree of unanimity with respect to the wholesale price trend. For December 1958 a sizeable number of economists selected each figure from 115 to 123, while a few ranged as low as 95 or as high as 128. A statistician looking for a modal figure in this particular frequency distribution would have a hard time of it, because there is no tendency to concentrate on any particular figure.

COMMENTS: "Any major recession now showing its face on the horizon would then take the form of much more inflation . . . rather than the form of advancing unemployment. The recession's cause will be mainly wage rates too high for the rest of the economy." / "I believe that temporarily inflation has been stopped and that prices have already started downward. Within the next six months I expect to see the sharpest recession since World War II. with unemployment rising to as much as five million." / "I feel that the inflationary spiral will level off next year for the following reasons: a leveling in the rate of family formations, consumer resistance to rising prices, public and political disapproval of continuing wage demands, public and private debt reaching dangerous limits and consequently leveling, continued squeezing of profit margins and a return to business economies." / "Cost of living should continue its gradual rise. Slackening of demand will take some of the wind out of the desire to raise wholesale prices." / "It is probable that after the turn of the year inflationary forces may begin to weaken as the result of increasing consumer resistance to rising prices. Wholesale prices appear to have reached their peak and a moderate downward trend in the all-commodity index is likely."

#### 3. AVERAGE HOURLY WAGES

The economists were not asked for numerical forecasts on this subject, but were requested to state whether they thought next year's wage trend would be up, down or unchanged in three categories: durable and non-durable manufacturing and building construction. The replies were overwhelmingly upward, but not quite so much so as in last year's survey. For durable goods manufacturing, only six economists foresaw a downturn; 24 thought there would be no change; and 171 said the trend would be upward. The pattern for non-durables was not quite so strongly upward, with 152 forecasting an upward movement, 38 foreseeing no change and nine indicating a downturn. For building construction, the pattern was almost identical to non-durables, with the figures at 149 up, 42 no change, and nine down.

COMMENTS: "There is no machinery for slowing down the increase in wage rates. That is the most important problem in the inflation field." / "The recession's cause will be mainly wage rates too high for the rest of the economy; but we shall correct this, I would expect, by diluting their wage dollars through inflation rather than by adjusting the wage directly." / "Further efforts to stem inflation will be only moderately successful and the wage-price spiral will continue . . . Demands by labor will result in fairly serious work stoppages, but overall employment and hence consumer expenditures will remain high." / "Further large wage increases seem assured in many of the so-called pattern-setting industries. The wage increase in steel is of course automatic, but even with a long strike, an inflationary wage gain in the automotive industry seems certain and this will spread to many other industries. There seems a good chance that wage gains next year will represent more in the way of real purchasing power than has been the case in the past year and a half." | "Average hourly wages will rise but not at the rates heretofore experienced. A good deal of the rise will be due to cost of living escalator clauses." | "Wages will rise further but should hit a tight money ceiling. Will tight money policies hold when this happens six months to a year from now? My answer is no."

#### 4. INDUSTRIAL PRODUCTION

While the economists expect gross national product to rise modestly next year, they are much more cautious with respect to industrial output as measured by the Federal Reserve Board's index of industrial production. This point tends to confirm the general impression that the increases next year will be largely confined to those indicators measured in dollars, since the index of industrial production is in terms of physical output. In June 1957, the index stood at 144. The median forecast of the economists is that it will rise to 145 in December of this year, drop back to 144 by June of next year, and then go up to 146 by December 1958. This would be an increase of about one per cent over the 18-month period, in contrast to the three per cent increase estimated for GNP. Obviously, a good deal of inflation (plus possible expansion of the trade and service sectors of GNP) must be assumed in this forecast.

The pattern of forecast on industrial production is quite different from the others. The largest group of economists, 34 per cent, expected a dip in the index in the first half of next year, followed by a rise in the second half. Another 30 per cent forecast a steady increase, while 16 per cent felt the year would be up in one half and steady in the other, with most of these putting the "up" in the second half. Some 15 per cent looked for a steady decrease during 1958, and the remainder indicated other combinations.

COMMENTS: "The F.R.B. seasonally adjusted industrial index is likely to move horizontally through the remainder of this year and through 1958. Such basic industries as automobile and steel production and nonresidential construction are likely to continue on a high relatively flat plateau with a slight downward tendency." / "Industrial production should remain at about present levels. Such shifts as will occur will be in a horizontal plane rather than vertical." / "In terms of physical volume, there should be continued high activity." "These developments suggest a leveling off in the capital goods boom, slower construction activity, and some production cut-backs late this year and early 1958." / "Recent trends in industrial production, weekly working hours and GNP, and especially per capita disposable income in terms of 1956 dollars suggest a drop-off in the near future." / "In connection with the steel industry, I believe 1958 will see an upturn in sheet and strip output, but some minor decline (two or three million tons) in total steel production." / "On balance, the decline in capital goods markets, flattening in consumer durables and improvement in soft goods and services, plus increased government spending at the state and local level, result in a pattern where the only overall gain is a slight increase in dollars. Yet no factor seems negative enough to start a major downtrend."

#### 5. NEW PLANT AND EQUIPMENT EXPENDITURES

Last year, the economists on the panel correctly indicated that 1957 plant and equipment expenditures would rise to a total of about \$37 billion. In the current survey, the economists are in substantial agreement that 1958 will witness a mild reversal of this trend. The median forecast for 1958 plant and equipment expenditures is \$36 billion. There is fairly general agreement among the economists that a decline will take place, and that it will be moderate. Only 20 per cent foresee any increase over this year's \$37 billion. About 14 per cent expect no change, while 66 per cent expect a decrease. Very few (only five per cent) expect the figure to fall below \$32 billion, however.

COMMENTS: "The end of the capital expenditure boom is visualized for 1958, without a serious recession thanks to public expenditures in a rising trend and well-sustained consumer spending." | "New plant and equipment expenditures will almost certainly turn down." / "Industrial development men of railway companies state that the market for industrial sites has been noticeably weaker this year as compared with 1956." / "Pressure on corporate profits will result in a reduction of expenditures for plant and equipment." / "Plant, equipment and housing expenditures have, I believe, reached a peak for the next 12 to 15 months." | "Weakest element during the year may be plant and equipment outlays. Cancellations and stretch-outs could be larger than indicated above." / "With cost-price relationships being squeezed and the expectation of higher prices less favorable, the profit incentive for plant and equipment expenditures is being lessened." | "Business spending for new plant and equipment will probably decline somewhat but probably not more than \$2 billion." / "New plant and equipment expenditures will be dressed downward slightly as some business establishments realize that long-range projections of two or three years ago will not be reached in 1958 or 1959. I look forward to the years beyond 1960 as being banner years."

#### 6. TOTAL NEW CONSTRUCTION

On the average, the economists look for no change in the dollar volume of new construction put in place in 1958. In the first half of 1957 the value of new construction was running at an annual rate of about \$47 billion, and the median forecast of the economists is that this rate will continue in the second half of 1957 and in both halves of 1958. They do not show any great degree of unanimity on this point, however, with the second half 1958 estimates covering a wide range. About 10 per cent thought the figure would be \$49.5 billion or higher, and about the same number picked \$43.5 billion or lower. Most of the replies, however (55 per cent), were in the range of \$46 billion to \$48 billion.\*

As to pattern, 32 per cent of the economists expected a steady increase over 1957 in both halves of 1958, while 22 per cent foresaw a steady decrease. Another 16 per cent felt that the first half would be down, while the second half would increase, and seven per cent saw the first half as steady, with a rise in the second half. Another seven per cent expected no change at all. The remainder expected various other combinations.

COMMENTS: "Beyond a doubt the level of general business activity now depends to a considerable extent upon the level of construction. The outlook for this sector of the economy is at best stable and gives every evidence of 'topping out' but is very spotty when considered either by type of construction or by geographical area." / "Commercial and industrial construction should be near 1957 levels. Public construction of buildings should continue on a slight increase. Impact of highway construction should be felt by middle of 1958." "Nonresidential construction is likely to show a slight downward tendency with the exception of Federal, state and local projects such as highway construction, schools, and other public buildings. Private utility companies are expected to continue their expansion to meet the urgent needs of the rapidly growing population." / "Construction likely will decline enough in the important residential and industrial divisions to offset rises in commercial, institutional and government building." / "Industrial construction and spending for capital equipment are likely to decline."

#### 7. NEW HOUSING STARTS

The economists are a little more optimistic about the number of privately financed non-farm housing starts. The seasonally adjusted annual rate in the first half of 1957 averaged 957,000. The median forecast of the economists is for a second half rate of 975,000, although the most popular (modal) rate, chosen by 51 economists, is 1,000,000. The median and mode are both 1,000,000 for the first half of 1958. For the second half, the median was also 1,000,000 but 1,100,000 was selected by about the

same number of economists. There were very few extreme estimates in either direction. Only 12 economists picked figures for the second half of 1958 lower than 900,000, and only eight gave estimates of 1,200,000 or more.

COMMENTS: "Residential construction and farming, which were weak in recent years, will represent elements of strength." | "We feel that residential building and public construction will be growth factors." / "An improvement in new housing starts will of course boost outlays for many of the house equipment items." / "The politically inspired Housing Act of 1954, on top of an easy money market, geared the nation's home building industry to levels we may not expect to see repeated until well into the next decade. The pendulum has swung, and we are paying the price for use of an economic control to accentuate, rather than diminish, the fluctuations of an already cyclical industry." / "Residential construction is likely to point upward after the turn of the year when the need for homes becomes more urgent and the credit restrictions imposed during the past year or more are in process of being eased." / "New housing should continue at or slightly above present levels." / "Residential construction should show some improvement next year, but this will be more than offset by a decline in capital goods demand."

#### 8. PERSONAL CONSUMPTION EXPENDITURES

Judging from the numerical replies as well as from the comments of the economists, consumer spending appears to be the brightest light on the 1958 horizon. In the first half of 1957 the annual rate of personal consumption expenditures was \$278 billion. Nearly 90 per cent of the respondents thought the second half rate would be above this figure. The median estimate for the second half of 1957 is \$280 billion and for the full year 1958 it is \$285 billion. While there is some spreading out of the forecasts for 1958, both upward and downward, far more economists expected very high figures than very low ones. For example, only eight per cent thought the 1958 figure would be lower than \$275 billion, while 36 per cent said it would be \$290 billion or above.

COMMENTS: "It seems clear that any rise in the level of general business from this point forward through 1958 will have to depend upon an upturn in consumer spending." / "Consumer spending will provide the major stimulus for another prosperous year." / "Consumers are in a very strong position both savings- and earnings-wise to expand their purchases. We believe that they will do so. Therefore we foresee good increases in non-durable goods sales, and reasonably good automobile and appliance years. Services will continue their up-trends." / "Personal consumption expenditures will be subject to conflicting forces. Reduction in overtime will tend to force them down; inflationary forces will tend to work in the other direction. Result: a slight increase." "Personal consumption expenditures are expected to continue in moderate year-to-year rate of gain as a result of population growth and increase in per capita income." / "The key to the situation will be consumer spending, which in my opinion will be greater than is generally believed at present."

<sup>•</sup> It should be kept in mind that this is the forecast of the economists polled by F. W. Dodge Corporation, and it is not to be confused with the construction forecast made by the Dodge organization itself.

Raymond P. Abouchar, The Firestone Tire & Rubber Co., Akron : Adolph G. Abramson, Economist, S.K.F. Industries, Inc., Philadelphia; Dr. Eugene E. Agger, Professor Emeritus, Rutgers University: R. S. Alexander, Columbia University: John T. Anderson, ARMCO Steel Corp., Middletown, Ohio; Robert H. Armstrong, Armstrong Associates, New York: Frederick C. Arpke, Larry Smith and Company, Seattle: P. T. Babson, United Business Service, Boston; L. Durward Badgley, Mutuni Life Insurance Co. of New York: Dr. Wesiey C. Ballaine, Bureau of Business Research, University of Oregon; Horace R. Barnes, Professor Emeritus, Economics and Business Administration, Franklin & Marshall College, Lancaster, Pa.: Paul A. Baumgart, Safeway Stores, Inc., Oakiand, Cal.; B. H. Beckhart, Columbia University; George A. Beise, American-Standard, New York: Spurgeon Bell, consulting economist, New York.

Claude L. Benner, Continental American Life Insurance Co., Wilmington, Del.: John P. Bennett, Bulldog Electric Products Co., Detroit; Edwin W. Berg, Campbell-Mithun, Chicago; Richard Berger, General Aniline and Film Corp., New York; Frederick M. Bernfield, Arlington; George L. Bliss, Centry Federal Savings & Loan Assan., New York; Alvord L. Boeck, Kwikset Sales and Service Co., Annheim, Cal.; E. H. Boeckh, E. H. Boeckh & Assoc., Washington, D.C.; Jules I. Bogen, New York; Harry D. Bonham, University of Alabama; Chelcie C. Bolsland, Brown University, Providence Philip J. Bourque, University of Washington, Seattle; Elmer C. Bratt, Lehigh University; Waite S. Brush, Consolidated Edison Co. of N. Y. Inc.: Dr. F. A. Buechel, Houston Chamber of Commerce; Dr. Henry Bund, Research Institute of American, New York: Robert W. Burgess, Directors.

Houston Chamber of Commerces; Dr. Henry Bund, Research Institute of America, New York.
Ralph E. Burgess, American Cyanamid Co., New York; Robert W. Burgess, Director, Bureau of Census, U. S. Dept. of Commerce; Francis J. Calkins, Marquette University; Chester B. Camp, Indianapolis Bond & Share; W. Glenn Campbell. American Enterprise Assn., Washington, D. C.; William P. Carlin, Republic Steel Corp., Cleveland; Dean Cecil C. Carpenter, University of Kentucky; John J. Carter, Indiana National Bank, Indianapolis; Dr. L. W. Casaday, University of Arizona; Edward J. Chambers, University of Arizona; Edward J. Chambers, University of Arizona; Edward J. Chambers, University of Commercian Statistics, Bureau of Labor Statistics, U.S. Dept. of Labor; Homer V. Cherrington, Ohio University; LeRoy F. Church, Emery Industries, Inc., Cincinnat; Ewan Clague, Commissioner of Labor Statistics, U.S. Department of Labor William A. Clark, Monsanto Chemical Co. St. Louis; Aiden G. Clayton, Lever Brothers Company, New York City, George W. Cloos, Chicago; Philip E. Coldwell, Federal Reserve Bank of Dallas; George W. Coleman, Mercantile Trust Co., St. Louis; Gerhard Colm, National Planning Assn., Washington, D. C.; William M. Crane, Jr., The American Brass Co., Waterbury; Dolph Crews, General Electric Co., Bridgeport; D. M. Davenport, Syracuse University; G. R. Detrie, Inland Steel Products Co., Milwauke; Stuart C. Dobson, Fibreboard Paper Products Corp., San Francisco; Leonard A. Drake, Chamber of Commerce of Greater Philadelphia; Henry P. Dutton, Hendersonville, N. C.; Stahrl Edmunds, Ford Motor Co., Dearborn, Mark Weeley A. Edwards, Washington, D. C.; R. J. Eggert; Ford Motor Co., Dearborn; D. C.; Elliott, Cleveland Trust Co.;

George H. Ellia, Federal Reserve Bank of Boston; Ira T. Ellis, E. I. duPont de Nemours Co., Wilmington; Earle L. Elmore, W. Va., Chamber of Commerce: Warren W. Etcheson, University of Washington, Seattle; Robert Ferber, University of Illinois; Leo Fishman, University of Washington, Seattle; Robert Ferber, University of Illinois; Leo Fishman, University of W. Va.; Professor Morris D. Forkosch, Brooklyn Law School; E. Dorsey Foster, Radio Corporation of America, Camden, N. J.; Dr. John D. Gaffey, Arcadia, Cal.; Tom Gardner, The Babcock & Wilcox Co., N. Y.; E. H. Gault, Professor of Marketing, Bureau of Business Research, University of Michigan, Edwin B. George, Economist, Dun & Bradstreet, New York; John P. Gill, University of Georgia; Charles A. Glover, Upper Montclair, N. J.; William L. Gregory, President, Easton-Taylor Trust Co., St. Louis; K. F. Griffith, Eli Lilly & Co., Indianapolis; John A. Griswold, Dartmouth College; David Grove, Bank of America, San Francisco; Lee Gunlogson, Carrier Corporation, Syracuse 1, N. Y. Arthur W. Gutenberg, Phoenix; Clarence H. Haines, Harvard Trust Co., Cambridge; Daniel C. Hamilton, The Atlantic Refining Co., Philadelphia; Louis F. Hamnel, United Air Lines, Inc., Chicago; Albert Haring, Indiana University; Dr. F. A. Harper, The Foundation for Economic Education, Inc., Irvington-on-Hudson, N. Y.; William W. Heusner, Pabst Brewing Co., William W. Heusner, Pabst Brewing Co.

Education, Inc., Irvington-on-Hudson, N.Y.;
Borden Helmer, Union Carbide Corp., New
York.
William W. Heusner, Pabst Brewing Co.,
Chicago: Walter E. Hoadley, Jr., Armstrong
Cork Co., Lancaster: Werner Hochwald,
Washington University. St. Louis: Francis
P. Hoeber, Borg-Warner Corp., Chicago:
Walter M. Hollowell, Management Analyst,
Lowry Air Force Base, Denver: Ralph C.
Hon, Southwestern College, Memphis: Floyd
J. Hosking, Corn Industries Research Foundation, Inc., Washington, D.C.: Dr. Louis
S. Hough, University of Toledo: James F.
Hughes, Auchincloss, Parker & Rednath, New
York: Joseph H. Humphrey, Calvin Bullock,
New York: Dr. George B. Hurff, University
of Florids: Norris O. Johnson, First National City Bank of New York: Robert E.
Johnson, Western Electric Co., Inc., New
York: Flavius B. Jones, Equitable Gas
Co., Pittsburgh: Homer Jones, Federal Reserve Board, Washington, D.C.
Lester E. Keller, Bausch & Lomb Optical
Co., Rochester: Donald L. Kemmerer, University of Illinois: Fred O. Kiel, Federal
Reserve Bank of Cleveland; Edmund R.
King, Eastman Kodak Co., Rochester: Robert L. Kirk, Central-Penn National Bank of
Philadelphia: Thomas Kinsella, Allied Chemical & Dye Corp., New York: Stanley Mitchell
Kolsan, General Merchandise Co. Milwaukee: Byron J. Korb, Koppers Co., Inc.,
Pittsburgh: Dr. H. E. Kromayer, American
Maise Products Co., New York: Harold D.
Kube, Jansky & Bailey, Inc., Washington,
D.C.; Francis A. Kutish, Iows State College: Noel P. Laird, Franklin & Marshall
College, Lancaster, Pa.; Robert E. Lewis,
The First National City Bank of New York
St.
Kadmin M. Libbin, Scott Paper Co., Chester,
Pa.; Wesley Lindow, Irving Trust Co., New
York.
Oscar F. Litterer, Federal Reserve Bank
of Minneapolis: Dean Shaw Livermore. Uni-

York.

York.

Of Minneapolis: Dean Shew Livermore, University of Arizona: Gordon M. Looney, Libby-Owens-Ford Glass Co., Toledo: Franklin Lynip, Carrier Corp., Syracuse: Roger Magoun, Norton Co., Worcester: Sherman J. Manisel, University of California: Merten J. Mandeville, University of Illinois: R. Matthes, Owens-Corning Fiberglas Corp., Toledo: Henry H. McKee, Jr., The General Tire & Rubber Co., Akron; Gordon W. Mckinley, Prudential Insurance Co. of America, Newark; David C. Melnicoff, The Pennsyl-

vania Railroad Co., Philadelphia; Roger I. Mendes, Pacific Gas & Electric Co., San Francisco; Edmund A. Mennis, The Wellington Co., Philadelphia; Dwight Michener, The Chase Manhattan Bank, New York; Henri L. Micoleau, General Motors Corp., New York

Sandintan Bain, New York, New York, M. E. Miller, Armour & Co., Chicago; Walter Mitchell, Jr., Associated Management Consultanta, Cleveland; Dr. Floyd W. Moore, Western Mitchigan College, Kalamasoo; Kari Morrison, University of Massispip; Roger F. Murray, Columbia University; Ragnar D. Naess, Naess & Thomas, New York; Robert R. Nathan, Washington, D.C.; Philip Neff, Planning Research Corp., Los Angeles; Dr. M. R. Neifeld, Beneficial Management Corp., Morristown, N. J.; A. J. Nesti, National Electrical Mfrs. Assn., New York: Dr. Robinson Newcomb, Washington, D.C.; K. O. Nygaard, The B. F. Goodrich Rubber Co., Akron; Dr. Paul H. Nystrom, Spring Valley, N.Y.; Edmund B. O'Leary, University of Dayton; Daniel Parson, American Gas Assn., New York.
Franklin L. Parsons, Federal Reserve Bank, Minneapolis; Dr. Clyde W. Phelps, University of Southern California; William G. Potter, E. L. Weigand Co., Pittsburgh; Robert T. Pullar, American ENKA Corp., New York; Dr. John F. Pyle, University of Maryland; Dr. B. U. Ratchford, Duke University; S. V. Reiss, Graybar Electric Co., Inc., N. Y.; William A. Reynolds, Carpet Institute, Inc., New York; James L. Rich, U.S. Steel Corp.; Robert Rockafellow, University of Royth; Arthur Rosenbaum, Sears, Roebuck & Co., Chicago; J. M. Ryan, Mountain States Telephone & Telegraph Co., Denver: S. Grant Saunders, Upper Montclair, N. J.: Arch D. Schultz, Director of Taxation & Research, Co., Mr. Ryan, Mountain & Research, Co.; The Co., Inc., N. S. Schold, The Dayton Rubber Mfg. Co.; William H. Shaw Textile Fibers Division, E. I. duFont deNemours Corp., Wilminston: C. A. Sienkiewicz, Central-Penn Natl Bank of Philadelphia: Frederic L. Simmons, Guaranty Trust Co., of New York: Leonard Smith, U.S. Rubber Co., New York: Leonard Smith, U.S. Rubber Co., New York: Selson Lee Smith, American Airlines, Inc., New York: Dr. Thur A. S. Scofield, The Dayton Rubber Mfg. Co.; Williams R. Shaw, Texasis Benjamin Stacey, The First Natl Bank of Boston: Dr. Mackenzie Stevens, San Francisco; Dr. Louis T. Stevenson of

## THE RECORD REPORTS

#### PERSPECTIVES

EXTENSION OF THE U. S. CAPITOL is the subject of a thoughtful and comprehensive report by Henry Shepley, John Harbeson and Gilmore Clarke, Consulting Architects to the Architect of the Capitol, J. George Stewart. The report was made public in the renewed storm of controversy that followed release of the Stewart report (AR, Oct. 1957, page 32) outlining a \$110 million program for extending not only the East Front of the Capitol but the West Front as well. As varying interpretations of the views of the Consulting Architects have further confused the issue, the Recond here presents their report in full

The capitol is regarded as the most important building in the United States. It is a shrine in which many important episodes in the history of this country were enacted, as also Independence Hall in Philadelphia and Fanueil Hall in Boston are shrines. The Capitol, I bwever, is unique in that it still remains the seat of the Government's legislative assemblies. Like the great Gothic cathedrals of Europe, the Capitol is right a creation but a growth; its high value lies in the fact that it never was and doubtless never will be finished.

The Capitol, in addition to serving many useful functions, is also a museum. With the growth in complexity of the Government it is inevitable that the building must undergo changes, now and in the future as well as in the past. The Government is in desperate need of more adequate space for the operation of those functions that must still remain within this distinguished building.

It is unthinkable that the legislative halls should ever be located elsewhere; they are what make the Capitol the seat of the Government; without them the building would be an empty shell and a lifeless shrine, much as Independence Hall is now a lifeless shrine, the seat of ghosts of a former important epoch but now merely a museum.

Ten thousand citizens visit the Capitol daily. They do so because it not only housed the deliberations of the law-makers of the infant nation, but continues to serve the same purposes today.

Architects Thornton, Latrobe, Bulfinch and Walter planned changes in the Capitol. Their combined effort is the building we all revere today. There is no reason, therefore, why changes, necessitated at this time because of the continuing growth of the Nation's legislative affairs, should not be as thoughtfully studied and as successfully achieved as before.

#### THE PROBLEM

The problem assigned to you of increasing the usable space in the Capitol and of making all areas more efficient and more serviceable to the Members of Congress, their staffs and the employes of the building, without marring its historic aspect or its unique architectural qualities of beauty and proportion, is a difficult one.

We commend the steps you have taken in the study of this problem, for example: the detailed measuring of the existing structure and of the Capitol grounds followed by the preparation of complete drawings of the building and of its surroundings; the taking of borings and digging of test pits to determine the condition of the foundations and the nature of the ground where the building stands; the investigation of the condition of the exterior stonework, of the wall construction and of the Dome; the survey of existing interior facilities, of the present shortcomings with respect to proper service for legislative functions to determine what is needed in the next twenty-five years. The study now underway aims to formulate a comprehensive plan to meet these requirements.

You have well chosen your Associate Architects Roscoe DeWitt and Fred L. Hardison; Alfred Easton Poor and Albert Homer Swanke; Jesse M. Shelton and Allen G. Stanford; they have pursued the studies they have undertaken thoughtfully and with ability to the end that the results are distinguished.

We agree with you that it is proper to consider also, as part of the program, the following:

- To establish a north-south private corridor on each floor for the exclusive use of the Members of Congress and their staffs.
- To provide additional elevator and escalator services.
- To modernize and augment the lighting, air conditioning, and areas set

apart for files and for records, etc.

- 4. To provide an underground garage with suitable entrances for Members of the Congress and for the public including arrival area and distribution center for taxicabs and other vehicles.
- To provide new and improved underground railways for Members of the Congress.
- To eliminate the surface roads and automobile parking on Capitol grounds with the appropriate redesign of these areas to create a new plaza at the east front worthy of this distinguished building.

#### THE NEED FOR CIRCULATION

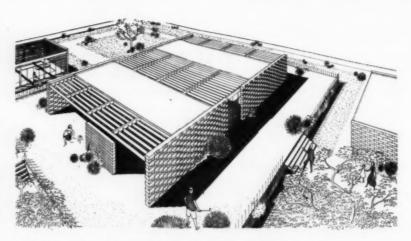
The architects who designed the various parts of the Capitol were men of taste and feeling, especially Thornton, Latrobe and Bulfinch, who composed the central, older part. When they worked on the plan there was no foreknowledge that in time the building would be required to accommodate large numbers of visitors in addition to the legislators. Consequently there is now no separation of the visitor or "shrine" circulation from that used by the Members of Congress and office staff. This fact causes much inconvenience with the result that the work of the Congress is not as effectively accomplished as it might be under more ideal conditions.

One of the most needed improvements, that your plans include, is the creation of a north-south corridor on each floor connecting the Senate and House wings for the exclusive use of Members of the Congress, their staff personnel and their guests, completely separated from the circulation used by visitors to the "shrine" features of this historic building. The problems created by visitors have arisen since the Hastings report of 1903; this is one of the reasons why Scheme B of that report is (Continued on page 340)

#### THE RECORD REPORTS

#### BUILDINGS IN THE NEWS

FIRST PRIZE of \$2500 was awarded to Peter R. Lee, senior student in architecture at the University of Minnesota, for this design, praised for its "directness and sense of unity, and the logic of its solar equipment, which acts in the double capacity of shade louvers in the summer and heat collectors in the winter." In the competition, Mr. Lee was affiliated with Robert Lewis Bliss, A.I.A., senior partner of the Minneapolis architectural firm of Bliss and Campbell



#### WINNING DESIGNS FOR "LIVING WITH THE SUN"

A senior architectural student at the University of Minnesota, Peter R. Lee, has been awarded the \$2500 first prize in the International Solar House Architectural Competition sponsored by the Association for Applied Solar Energy of Phoenix, Arizona.

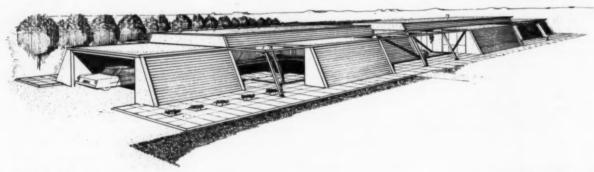
The top design, four other prizewinners and three Honorable Mentions were selected from among 113 entries from 13 countries by a jury consisting of Dean Pietro Belluschi, F.A.I.A., of M.I.T.'s School of Architecture and Planning, chairman; Carlos Contreras, Hon. F.A.I.A., of Mexico City; Thomas Creighton, A.I.A., of New York, editor of Progressive Architecture; Nathaniel Owings, F.A.I.A., of San Francisco; and James Elmore, A.I.A., of Phoenix. James M. Hunter, F.A.I.A., of Boulder, Colo., was professional adviser.

Besides the top three prizes, all shown on this page, fourth and fifth prizes of \$500 each were awarded to I. C. Christensen of Arhus, Denmark, and Robert J. Pelletier of Beverly, Mass. Honorable Mentions went to designs submitted by Enis Kortan of New York, R. B. Maides and G. J. Shaw of Buffalo, and Morton Karp of Mill Valley, Cal.

Purpose of the competition was "to obtain original designs for a residence especially adapted to 'living with the sun' on an irrigated desert site" five miles north of Scottsdale, Ariz. The first-prize house is now being built and

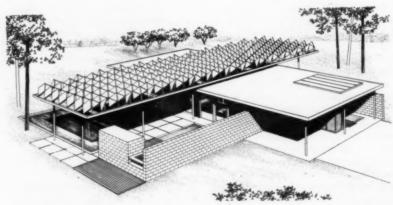
will be put on public exhibition early in the spring. It will also serve as a "living laboratory" for the Association and will be the center of interest at the First Solar House Symposium, to be sponsored next September by the Association in cooperation with the University of Arizona and Arizona State College at Tempe.

In the prizewinning house, solar collectors will supply heat in winter, heat the domestic water and warm the swimming pool which is an integral part of the design. An electrically operated heat pump will supply auxiliary heating and provide summer cooling. Storage of heated water in winter and chilled water in summer will be in a large buried tank.



SECOND PRIZE of \$1500 went to Anna Campbell Bliss, junior partner of Bliss and Campbell, with the comment: "The main appeal of this design lies in the fact that the solar collectors themselves produce the architectural quality of the house. The disposition of these collectors keeps the house from becoming too severe . . ."

THIRD PRIZE of \$1000 was awarded for this scheme by John N. Morphett of South Australia and Hanford Yang of China, both former students of the Graduate School of Architecture at Massachusetts Institute of Technology



A modified plan for the Jefferson National Expansion Memorial on St. Louis' Mississippi riverfront was presented last month in St. Louis by Conrad Wirth, director of the National Park Service, and architect Eero Saarinen, whose design won the \$40,000 first prize in the nationwide architectural competition for the development in 1947 (AR, April 1948).

The revised proposal, presented in model (of which photographs are shown here) and drawings and described in a statement by Mr. Saarinen, appeared from initial reaction to meet one of the key objections which have so long delayed the project—relocation of two main line railroad tracks, now elevated on the riverfront, in a deep cut or ditch, part of which would be a covered tunnel. The earlier scheme, which would have put all tracks in a covered tunnel, had been opposed as prohibitively expensive.

The great stainless steel Arch towering to a height of 590 ft is unchanged from the original design. The changes are in the plan of the park, the setting for and approaches to the Arch and the placement of other buildings on the site.

"The spirit of the new design," Mr. Saarinen said in his statement, "is the same as that of the design which won the national competition ten years ago. . . . We have developed the plan into a greater unity; we have been able to give more dramatic focus to the important historic and symbolic structures - such as the Arch and the Church of St. Louis of France and the Old Court House; we have made compromises with the problems of railroad and vehicular traffic, which we believe will be of benefit to all concerned, and we have reexamined the Park in its relation to the city and the river fronts.

"We feel that we have now related all the major elements of the Park to each other in a more unified way. The stainless steel Arch - as the symbolic Gateway to the West - is the benter and focus. It now stands on a raised base, as have all great vertical monuments of the past. Its dimensions, as you will recall, are 590 ft high with a span of 630 ft. Fifty-seven ft at the triangular bases, it tapers to 17 ft at the apex, from which the visitor will see out across the great plains and will, as William Wurster, dean of the School of Architecture at the University of California put it, 'face the monumental importance of the greatest of rivers.' On the levee side, a broad monumental stairway leads up to the





Arch. It is a symbolic stairway, as well as an actual one, for it symbolizes the movement of the peoples through St. Louis, the gateway.

"The axial relation between the Arch and the handsome, historic Court House, which it frames, is now much stronger and clearer. The new curvilinear form of the plaza on which the arch stands and of the roads which wind through the Park all belong to the same 'parabolic' family as does the Arch itself. Thus, the whole composition becomes a more mature and classic design.

"The formal elements of the plaza and the axial, tree-lined mall leading to the Court House are contrasted with the romantic forest areas on each side of the axis — areas in which we envision pools and rock out-croppings and pleasant, winding paths.

"The Historical Museum is now moved to the levee. This Museum on the south and the Restaurant on top of a retaining wall to the north serve not only as anchors to the whole composition but are placed where they take greatest advantage of the marvelous view of the river front and where they are in most convenient relation to the parking areas. We envision the river boats and pleasure craft tied up at the northern and southern section of the levee. The more life and commerce on the river, the livelier the view from the observation decks and restaurant above. In the words of the great Luther Ely Smith: 'This should be a living monument.'...

"One cannot think of the Park alone. The Park, the City, the west side of the Mississippi and the east side — these are all parts of one composition. On the model, we have taken the liberty of showing a diagrammatic redevelopment on all three sides of the Park. . . . We have also included the east side of the Mississippi. . . . We would hope that this side of the river could be developed so that it, too, would become part of one great composition. . . ."

#### THE RECORD REPORTS: BUILDINGS IN THE NEWS



#### A LOOK TO THE FUTURE

"Modern architecture — the expression of our own time in our own vocabulary — has become accepted and customary for Federal and State as well as for private buildings. It is an illusion to expect continued 'progress' in a creative art; but we may, perhaps, be permitted to hope that our architecture will continue to evolve as an expression of our civilization"

#### WHAT KIND OF ARCHITECTURE FOR PUBLIC BUILDINGS?







The Public Buildings Service of the General Services Administration, the U.S. agency responsible for all non-military Federal government building, made its contribution to the celebration of the American Institute of Architects' Centennial Year with an exhibition "100 Years of Federal Architecture" which opened at The Octagon in Washington during the A.I.A. Centennial Convention and remained on view throughout the summer. The exhibition, consisting of photographs from the National Archives and from PBS files, consisted of 40 buildings, including four (all shown on this page) still to be constructed, and was intended to document "the representative architecture of buildings constructed for the use of the United States Government in the ten decades since 1857." In selecting the photographs for the exhibit, PBS had the advice of a panel of three members of the A.I.A. -Louis Justement, Leon Brown and Nicholas Satterlee, all of Washington, who also wrote the commentary.

(Continued on page 320)

1. Central Intelligence Agency, Langley, Va.; Harrison & Abramovitz, Architects. 2. Bureau of Old-Age and Survivors Insurance (Department of Health, Education and Welfare), Baltimore; Meyer and Ayers, Fisher, Nes, Campbell and Associates, Architects. 3. Department of State Building Extension, Washington, D. C.; Graham, Anderson, Probst and White Inc., Harley, Ellington and Day Inc., Architects and Engineers - A. R. Clas. Associate Architect. 4. U. S. Post Office and Court House, Omaha; Steele, Sandham & Steele, Henningson, Durham & Richardson Inc., Kirham, Michael & Associates, Architects-Engineers

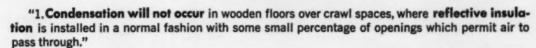
(More news on page 16)

## TECHNICAL Bulletin No. 38

### **Tests by the National Bureau of Standards**

#### CONCLUSIONS:

(Exact Quotations)



"2. The **temperatures** of such insulation surfaces should remain above the dew point of the air in contact. The relative humidities of the air in the spaces within the floor structure are unaffected by opening or closing the crawl space."

"3. A perfect vapor seal by means of the reflective insulation, or other material, is neither necessary nor desirable and would probably permit condensation to occur in some cases. Perforations, of the order used, assure air flow upward through the floor structure, and provide drainage for water which might leak through the floor from above."

"4. Reflective insulation produces a marked rise in the temperatures of the floor surface."

#### EXCERPTS (Exact Quotations)

#### Severe Tests With Sudden Cooling

"Eight tests were made with a single layer of reflective insulation, six with steady ambient temperatures of 32° F. and 10° F., and two in which the test box was preheated and then the ambient temperature reduced as rapidly as possible to determine whether a sudden cooling of the reflective insulation would cause moisture to condense on the upper side. Three tests were made with two layers of reflective insulation under the floor and with steady ambient temperatures at 25° F. or 32° F."

"Condensation never occurred on the upper surface of either layer of the reflective insulation under all of the varied conditions of these tests. The temperature of these surfaces was observed to be above the dew point of the contacting air under all test conditions."

#### **Dew Point Never Reached**

"At steady conditions with average outside air temperatures between 30.9 and 32.2 degrees F., the temperatures of the upper surface of the insulation remained above the dew point of the air to which it was exposed by 9.9 to 18.7 degrees F. with one layer of insulation and by 12.5 to 15.7 degrees F. with two layers of insulation."

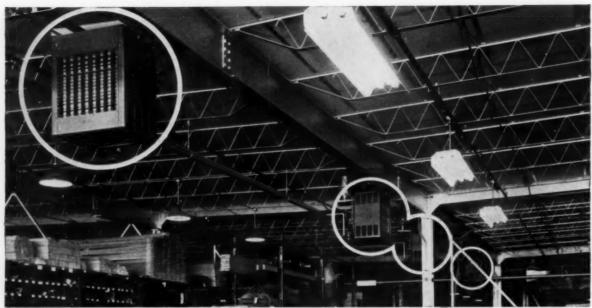
"Under conditions where the temperature of the ambient air was reduced rapidly, and with one layer of insulation, the temperature of the upper surfaces of the insulation dropped with the dew point of the air to which it was exposed. When the outside temperature dropped from 56.3° F. to 31.4° F. in six hours, the insulation temperatures remained above the dew point by 14.6 to 10.3° F. When the ambient temperature was dropped from 39.2° F. to 9.2° F. in 24 hours, the insulation temperatures remained above the dew point by 12.9 to 5.8° F."

"As a further indication of lack of condensation, the upper surface of the upper layer of insulation was deliberately fogged during several of the tests. Each time the surface of the insulation was so fogged, the condensed moisture disappeared within 5 to 10 minutes."

"The results indicate that condensation would not occur between the floor and the insulation or between the two layers of insulation during any probable winter condition."

Send the coupon for a free copy of this remarkable and interesting Technical Bulletin No. 38.

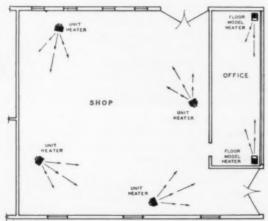
NAMI	tional Bureau of Standards Booklet No. 38.
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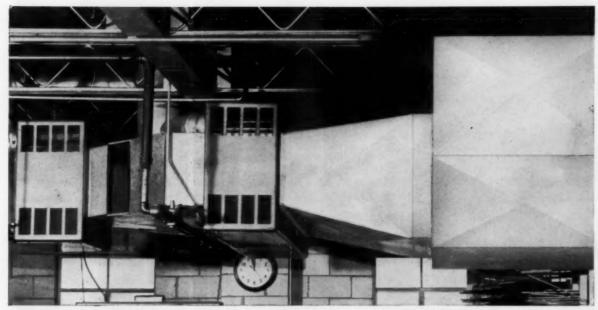
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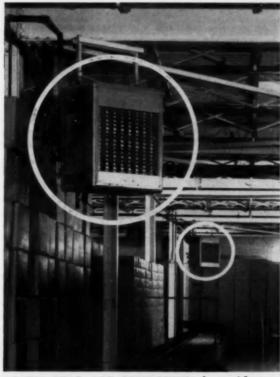
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## THE RECORD REPORTS ARCHITECTURE ABROAD

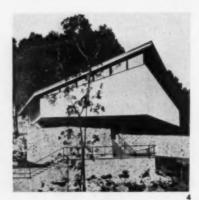




SELECTIONS FROM EXHIBIT

1. Theater with hotel and restaurant at Grenchen; Ernest Gisel, Architect. 2. One-family house at Kusnacht; Alfred Roth, Architect. 3. Primary school at Hergiswil; W. H. Schaad and E. Jauch, Architects. 4. Community auditorium at Niederurnen; Hans Leuzinger and Hans Howald, Architects





#### POSTWAR SWISS ARCHITECTURE ON VIEW IN NEW EXHIBIT

The U. S. gets its first good look at postwar achievements of Swiss architecture and design in the exhibit "Good Design in Switzerland," organized and designed by Architect Alfred Altherr, director of the Swiss Werkbund, and currently circulating in this country under the auspices of the Traveling Exhibition Service of the Smithsonian Institution (Washington 25, D. C.).

The exhibition, consisting mainly of photographic enlargements and including a few pieces of jewelry, toys, watches and samples of weaving, is divided into four sections: Planning in the Landscape (airports, roads and bridges and dams); Education, Training, Recreation (schools, theaters, baths and playgrounds); Work (office buildings, factories and industrial products); and Housing (single-family dwellings, apartment houses, interiors, furniture, textiles and appliances).

Swiss architects, like their American

counterparts, have practiced since the war in the context of a record economic boom and intense building activity. In his introduction to the exhibition catalog, Architect Alfred Roth, the current president of the Werkbund, remarks the relationships between American and Swiss design, which he attributes to similarities in the way of life, standards of industrial production and democratic heritage of the two countries. And, he adds, "Both the Americans and the Swiss have a strong feeling for the practical, the useful, and for sound technical execution and good, simple design."

Discussing the historic evolution of Swiss architecture, Mr. Roth notes that it has been influenced at various times and in various parts of Switzerland by German, French, Italian and Austrian sources and never developed as a uniform national style, even before the confusion of ideas and objectives that came with the technological revolutions of the past century.

The adoption — and effective adaptation — by the Swiss of the principles of modern design was notably served by the organization in 1914 of the Swiss Werkbund, whose members are the leading architects, painters, sculptors, industrial designers, photographers, goldsmiths, potters and textile craftsmen.

"Today," says Mr. Roth, "it can be claimed that modern Swiss architecture is firmly established and has an unmistakably Swiss character. By that I mean the special methods and ways in which we Swiss architects adapt buildings to topography and landscape, develop buildings out of their particular functional requirements, apply our excellent building technique, and finally, aim at fresh and clear expressions of design. We are not interested in the sensational, but in the honest, the simple, the human."

(More news on page 16B)



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#### NUCLEAR ENERGY AND THE DESIGN PROFESSIONS

West Coast Meeting Considers Present Problems and Future Potentials: A Special Report, by RECORD Senior Associate Editor Elisabeth Kendall Thompson, on a Joint Meeting of the Coast Valleys Chapter, A.I.A., and the San Jose Chapter, A.S.C.E., First Published in the Northern California A.I.A. Bulletin

Architects and engineers have much to contribute to the rapidly developing nuclear field, but two things stand in the way of their immediately accomplishing much. The first is that they are not as vet informed enough to tackle the problems of this new field and to provide creative answers to its highly specialized needs. The other is that the people who build the buildings in this field - boards of directors in private industry, government bureaus in the government's program of construction - are too little aware of the potential service through which architects and structural engineers could provide them with better buildings. Though neither of these is an insurmountable difficulty, hurdling each will take some doing - and as of the present little is being done on either score.

These were the opinions of the panel of architects, engineers and nuclear scientists who discussed "The Impact of Nuclear Energy on the Design Professions" at the annual joint meeting of the Coast Valleys chapter, A.I.A., and the San José chapter, A.S.C.E., held recently in San José. Some 350 architects and engineers, including members of other engineering groups in the Bay area and the American Nuclear Society's Northern California Section, heard six panelists discuss the potentials and problems of design and construction in the nuclear field.

Moderator for the panel was William M. Rice, A.I.A., A.S.M.E., A.N.S., of the University of California Radiation Laboratory, member of the national A.I.A. Committee on Nuclear Facilities

and chairman of the Northern California Chapter's committee. On the panel were Ashton O'Donnell, manager for nuclear developments, Stanford Research Institute; Dr. Ralph Bennett, director, General Electric Vallecitos Atomic Laboratory at Pleasanton; Professor T. Y. Lin, A.S.C.E., Department of Civil Engineering, University of California; Dr. Hayden Gordon, A.S.M.E., chief engineer, University of California Radiation Laboratory; and Elisabeth K. Thompson, A.I.A., A.N.S., senior associate editor, Architectural Record.

With 10,000 people in the Bay area already directly working in the nuclear field, and some \$25,000,000 worth of facilities in existence in this part of Northern California alone, the importance of discussing the requirements and potentials of the nuclear industry is obvious

Four reactor sites in the area have been designated so far, and one reactor - at Vallecitos Laboratory - has already achieved criticality, that is, has sustained a chain reaction. Basic research in all facets of nuclear science is going on at Stanford University, the University of California and the Naval Radiological Defense Laboratory at Hunter's Point. In design and construction two Bay Area firms, Kaiser Engineers and Bechtel Corporation, are active. In the medical field, the University of California Hospital and Stanford both have installations providing radiological treatment for a variety of conditions, and in Stanford's new medical center at Palo Alto special facilities have

been designed into the building. Several Bay area commercial firms manufacture accelerators for industrial and research application, and small reactors especially designed for use in instruction and training courses but adaptable to production of short lived isotopes and hence of potential value in hospitals, industrial and small research laboratories. Other firms manufacture radiological controls for personnel monitoring, offer radiographical services (for irradiation of materials or for inspection of castings), and provide waste disposal service.

Merchant shipping companies are furthering work on a reactor-propelled merchant ship at the same time that the Navy is building an atomic-powered submarine at Mare Island. Research on weapons development is under way at Livermore, where the University of California has another large radiation laboratory, in addition to the one "on the hill" in Berkeley.

All in all, the nuclear field, directly and indirectly, accounts for a level of activity in the Bay Area amounting at the moment to some \$50,000,000. In the next few years this sum will inevitably be a great deal larger. In fact, said Ashton O'Donnell of Stanford Research Institute, within 10 years two thirds of the categories of economic activity in this country — and in this area — will feel the impact of nuclear energy. Nuclear energy, he predicted, will account for technical advances that will exceed any previous advances ever before made in the history of the world.

How this affects the design professions of architecture and structural engineering is, plainly, no longer a matter of conjecture. The nuclear age, so to speak, has arrived, and its problems and needs are on architecture's doorstep whether architecture is aware of them or not.

The panel for the San José meeting presented a general cross-section of the (Continued on page 328)



Vallecilos Alomic Laboratory of General Electric Company, dedicated last May on 1594-acre site near Pleasanton, Cal., is largest privately-financed atomic research



jacility in U. S., last month began making steam for this country's first privately financed atomic electric power. Three major components shown in photo at right

above are domed steel cylinder housing developmental boiling water reactor; experimental physics laboratory (center); and radioactive materials laboratory (right) (More news on page 21)

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Take the installation in the photo, above right, for example. The total cost - including the elaborate brasswork - was only slightly higher than that of good quality carpeting. It was only half the cost of the thinnest usable marble flooring. Carpeting, of course, would have had to be replaced periodically. Marble would have severely limited the decorator's design.

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#### The State of Construction

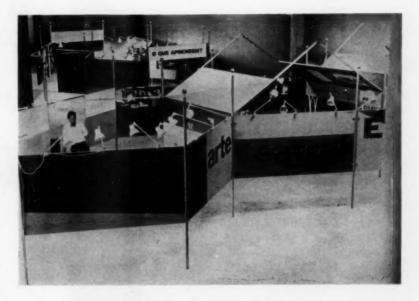
Next year will surpass the anticipated 1957 record in dollar volume of construction contracts, according to the annual "preview" of F. W. Dodge forecasters (see insert opposite page 8). For the regular monthly summary, page 374.

#### Nelson Wins for U. S.

The only official United States entry in the Sao Paulo Biennal, an exhibition of the teaching of stagecrafts in American colleges, won a Gold Medal and special mention in the first international biennal of theater arts at Sao Paulo. The exhibition, designed and built by the George Nelson Company Inc. of New York, was financed by the United States Information Agency at a total cost of \$27,000. It consists of three pavilions built (see cut) of especially designed lightweight aluminum poles, with special attachments to make possible lighting and hanging arrangements of almost infinite variety.

#### A.H.A.: Architectural View

Bringing something like 10,000 people to the boardwalk at Atlantic City, the annual convention of the American Hospital Association jammed its meeting rooms with eager listeners, but there was less than usual to interest any architects who might have tagged along. There was the customary exhibit of architects'



hospital plans, and one convention session labeled "conference on hospital planning," but on the whole the participation of architects was not notable, seeming to have slipped off some in comparison with recent years.

An architect scanning the 75-page program (not counting the list of equipment exhibitors) might have chosen to listen to the daily keynoters. First of these, Carter Davidson, president of Union College, might have been address-

ing a centennial convention of architects when he said: "I would be foolish to suggest a moratorium on science and technology, even if such were possible. Rather I urge that the humanities and social studies, which provide mankind with a set of values and a procedure for group living, must step up their productivity, so that the world can keep its patterns for more abundant living ahead of its techniques for more efficient killing."

At the working level, the same note of humanism kept coming in, as in the address of Dr. Julian P. Price: "Our hospitals need to regain the personal touch. Patients must be made to feel that they are not just room numbers on a floor." And Dr. Price, along with several others, talked of medical education and staffing problems along the line, as areas in which hospital administrators need to think in human terms, need to deal carefully with personnel resources, need to plan more efficient use of human energies and abilities.

Viewers of the future envisioned less specialization in hospitals rather than more. Dr. Price predicted that in medical practice the trend would be toward more specialization and group practice in clinics, but he joined other speakers in believing that the general hospital would be more comprehensive in its services: "The large institutions in metropolitan areas will increase their patient capacity through the addition of wings and annexes for the care of the convalescent, the chronically ill, and the (Continued on page 24)



-Drawn for the RECORD by Alan Dunn

"Just what do you mean by a 'stressed skin'?"



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#### THE RECORD REPORTS

#### MEETINGS AND MISCELLANY

(Continued from page 21)

patient who needs rehabilitation."

This same general prediction came out of the session programmed on hospital planning, but that is about all that did. Several hundred people crowded into the meeting room, testifying to the hunger for information on matters of building design and equipment, but only one speaker, Eric Pawley of the A.I.A., even used the word "building," and he was merely rounding out a plea for remembering that the architect makes a highly individual contribution to a design beyond all possible studies of function. Perhaps the panel decided that the usual session on building matters, with the inevitable questions about what kind of flooring or wall surfaces, had been done to death; but it certainly appeared that the large audience had been attracted by a hope for just such a program.

There was frequent expression of disappointment in the architectural exhibit, but fortunately this came more from architects than from administrators. One noticed that the architects took a quick look around the architectural exhibit and wandered off to the equipment show, while a great many with administrators' badges on their lapels studied the architectural panels. Which is to say that some matters at least were proceeding happily.

#### Maybeck Dies at 95

Another pioneer of modern architecture died last month - Bernard Ralph Maybeck of San Francisco, who received the Gold Medal of the American Institute of Architects in 1951 for his contribution to the development of American architecture. Open planning, indoor outdoor living spaces and combination living, dining and kitchen areas were features of Maybeck houses as early as the eighteennineties; extensive use of glass was another early development. Structure and space were equally his tools; he never became an imitator, even of himself; and to the end of his days - long retired but intellectually as alert as ever he would speak with scorn of buildings which "observe modernism as a sort of code." Born in New York in 1862. Maybeck studied for five years at the Ecole des Beaux Arts in Paris, then worked in the offices of Carrere and Hastings in New York and H. Page Brown in San Francisco. In 1908 he became the first instructor in architecture in the history of the University of

California. He opened his own office in 1903. Among his larger works the First Church of Christ Scientist in Berkeley is generally regarded as his masterpiece; and the Palace of Fine Arts, designed for the Panama Pacific International Exposition of 1915, remains, though other Fair buildings were long ago demolished, one of San Francisco's most admired and beloved landmarks.

#### The Ladies, Quiz 'Em

It is now firmly established that women are authorities on the home, and they are apparently going to be earnestly consulted on the subject at least once a year henceforth. One of their favorite magazines, McCall's, last month sponsored its first annual Congress on Better Living, "an investigation into how well the nation's homes really serve family needs," and the nucleus of a new building industry group, Women's Housing Congress Inc., shared in the pulsetaking. The event, held October 9-11 at the Shoreham Hotel in Washington, D. C., owed everything to the Women's Congress on Housing sponsored a year and a half ago by the U.S. Housing and Home Finance Agency (AR, June 1956, page 32) in an effort to focus the attention of the home building industry on the fact that houses are occupied by people. The 103 women of that Congress did a bang-up job of establishing that fact: moreover, they made it plain that

BERNARD RALPH MAYBECK (right) in one of the photographs released when he received the 1951 A.I.A. Gold Medal. Below: an interior of his First Church of Christ Scientist in Berkeley (1910) and (below right) his Palace of Fine Arts in San Francisco (1915)



more space, and space arranged to suit the family living pattern, had more appeal for them than owning every labor-saving device on the market. This year's Congress, comprised of 100 women, average age 31.3 years, from 45 states, got far firmer leadership. Influence of the industry group was epitomized in a questionnaire "The Things We Would Add" that each of the delegates was asked to fill out. "In the Women's Congress on Housing last year it was agreed that more space was the greatest single housing want. The question is," asserted the questionnaire, "in what order would you like to add refinements?" - i.e., extra bath; extra bedroom: air conditioning: built-in entertainment wall, desk, storage wall, TV; dishwasher: family room; fireplace; garage; half bath; built-in Hi-Fi; more closets and storage; planting and landscaping; remodeled kitchen; swimming pool; terrace or patio; waste disposer. Results of the tabulation of these questionnaires were not immediately released. Sampling of the discussions at the ten round tables at which the Congress deliberated suggested this year's delegates were no less concerned about space and its arrangement than last year's. A conscious desire for "individualism" was a strong theme; so was "creativeness" in decorating, furnishing and equipping the home; also a cry for more and better information about (Continued on page 28)





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#### THE RECORD REPORTS

#### MEETINGS AND MISCELLANY

(Continued from page 24)

equipment and maintenance. A strong dislike: anything fake; this came out in many contexts - real knotty pine, real tiles, real marble, or something they can afford that doesn't pretend to be what it's not. Architectural "styles" simply don't concern them: though some kind of vote was attempted on ozalid reproductions of renderings of so-called "Colonial," "Romantic," "Ranch," "Splitlevel," "Modern" and "Two-story" types, the discussions made it clear that there was only one fixed idea on this score: "I don't want a house that looks like everybody else's." Closely related to the insistence on individualism: the remarkable unanimity of response to the query on where they would turn for advice if planning to build a housebuilder? lumber dealer? architect? realtor? magazine? bank or lending agency? mail order plan service? "Architect" won hands down - "because he could suit our particular needs." And if anybody doubted it, the delegates confirmed home ownership and improvement as the most important claimant on family expenditures in the minds of women. McCall's plans to make the Congress an annual event and Women's Housing Congress Inc. hopes to mobilize sufficient building industry support for a separate industry-sponsored congress. Organizations presently represented in W.H.C. are the Better Heating-Cooling Council; Portland Cement Association; National Association of Plumbing Contractors; Plumbing Fixture Manufacturers Association; and Copper and Brass Research Association.

#### News from the Campus

University of Florida has announced the appointment of James T. Lendrum as head of the Department of Architecture at its College of Architecture



and Fine Arts.
Mr. Lendrum, who
has served for the
last eight years as
the director of
the Small Homes
Council at the University of Illinois,
is spending this
month in Pakistan

as a consultant on architecture and architectural education to the government under the auspices of the International Cooperation Administration. He will assume the Florida post December 1. Mr. Lendrum has architectural

degrees from the University of Michigan and the University of Illinois and joined the Illinois faculty in 1930 after experience with several architectural firms. He is a member of the American Institute of Architects and past president of the Central Illinois Chapter. . . . Philip N. Youtz of New York, architect and inventor of the Youtz-Slick lift slab construction method, has been named dean of the College of Architecture and Design of the University of Michigan, succeeding Wells Bennett, dean since 1937, who retired August 1. Mr. Youtz, who is 62, received his B.A. from Amherst and his M.A. from Oberlin and did graduate study in architecture at Columbia from 1926 to 1929. His prewar experience included teaching and museum administration; since 1946 he has been a practising architect in the New York City area. He is a member of the



WEST VIRGINIA A.I.A. Centennial Celebration included presentation of Commemorative Plate and Centennial Medal to Governor Cecil H. Underwood, shown above with Chapter President William H. Grant and Walter F. Martens, president of the West Virginia Board of Architects and past chapter president



NEW YORK architects elected officers at an annual meeting of state association at Buffalo. Shown above, they are (left to right): Martyn Weston, Brooklyn, treasurer; Harry Prince, New York, president; Simeon Heller, Queens, secretary; S. Elmer Chambers, Syracuse, third vice president; Frederick H. Voss, Westchester, second vice president; John W. Briggs, Rochester, first vice president



WISCONSIN architects had a special kind of session at a recent meeting the A.I.A. chapter invited to a luncheon all architects living in Wisconsin who were in the first group registered in the State of Wisconsin in 1918. The ten who attended of the original group of 186 posed for a group portrait (above) - (standing) Paul Marzillier, Albert Gallistel, Gerrit DeGellke, Richard Philipp, Martin Schneider, Clarence Johnsen, Roger Kirchoff, Urban Peacock, Walter Memmler, Richard Oberst, and Robert Chase with A.I.A. Regional Director Bryant P. Hadley and (kneeling) chapter members Robert Potter (secretary-treasurer), Perce G. Schley and Arthur O. Reddeman (president). On the same occasion, Mr. Kirchoff, who is state architect, was presented (below) with a citation honoring his services to the state and to architecture





SKIDMORE, OWINGS AND MER-RILL were architects of Karl Compton Laboratories at Massachusetts Institute of Technology, shown (with incorrect architectural credit) on page 166 of the August 1957 issue. The RECORD deeply regrets the error

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Mounting	125 Cycles	250 Cycles	500 S Cycles	1000 Cycles	
(7) mechanically supported	.32	.52	.80	.92	
	2000 Cycles	4000 Cycles	N. R. Specification		
	71	.47	.7080		

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#### COLLEGE BUILDING 1956-1970:

#### SURVEY YIELDS PRELIMINARY COST AND STRUCTURAL DATA

New details of future construction plans of U.S. institutions of higher learning are emerging from the continuing tabulation by the U.S. Office of Education of its College and University Facilities Survey, which has indicated an estimated expenditure for 1956-1970 construction of \$5.5 billion (AR, Aug. 1957, page 16). Some of the latest figures still, however, "preliminary" - are shown in the accompanying tables.

Among types of construction, it will be noted, reinforced concrete (not unexpectedly) leads the field - it will build 1821 of the 6071 projects throughout the U. S. on which such information was provided by survey respondents. Next in incidence: masonry walls, steel construction (1587); load-bearing masonry walls, steel construction (1059); load-bearing masonry walls, wood construction (220); and reinforced concrete lift-slab construction (209).

The preliminary estimated cost summaries, which give an average per-sq-ft cost for the U.S. as a whole of \$20 for "instructional facilities" and \$17.20 for residential facilities, reflect the wide regional variations in construction costs. Per-sq-ft residential costs, for example, range from the \$14.70 average of estimates for the South to the \$19.30 average of Northeast estimates; and the range can be even wider within regions; compare Wyoming's \$11.20 with California's \$22.70, or Alabama's \$11.90 with the District of Columbia's \$19.60. (Continued on page 332)

PRELIMINARY FIGURES from the College and University Facilities Survey of the U.S. Office of Education provide data on 1956-1970 plans of U.S. higher education institutions. Tables at right and below, covering both public and private institutions, are excerpted from preliminary summaries by Office of Education

ESTIMATED COST BY		No. of Cost per		BEARCH	RESIDENTIAL		
Aggregate U. S.	No. of units	Cost per	No. of units	Cost per	No. of units	\$17.20	
	0		0,,,,,				
	2058	\$20.00	177	\$26.00	1713		
Northwest	384	23.80	23	26.20	375	19.3	
Connecticut	20	18.60	2	21.30	17	19.1	
Maine	18	18.20	_		11	16.8	
Massachusetts	36	17.10	3	33.70	44	17.4	
New Hampshire	6	18.20	1	6.00	7	18.0	
New Jersey	37	19.50	-		22	19.90	
New York	155	25.70	13	27.90	140	19.1	
Pennsylvania	90	25.10	4	25.60	109	20.00	
Rhode Island	17	16.20	_	-	15	21.70	
Vermont		29.50	_		10	18.0	
North Control	560	20.40	50	22.90	509	17.30	
Illinois	54	18,80	13	17.90	72	17.1	
Indiana	71	21.80	2	36.30	53	19.70	
lowa	24	18.70	3	19.30	28	17.50	
Kansas	50	17.60	1	17.00	45	15.00	
Michigan	76	24.30	10	27.90	47	19.20	
Minnesota	24	19.10	5	20.80	37	15.90	
Missouri	47	18.10	3	23.60	47	11,10	
Nebraska	22	11.60	2	20.00	1.8	16.30	
North Dakota	12	15.60	2	16.80	19	17.00	
Ohio	100	20.80	3	20.80	76	19.20	
South Dakota	16	15.40	_		19	14.90	
Wisconsin	64	20.50	6	23.70	48	20.00	
South	606	15.90	34	20.20	552	14.70	
Alabama	51	14.10	1	71,40	42	11.90	
Arkansas	1.4	19.10	1	25.70	16	17.30	
Delaware	1	35.40	_		5	24.90	
Florida	42	17.40	2	20.50	20	14.80	
Georgia	43	18.90	2	18.90	35	12.70	
Kentucky	29	17.70	1	8.30	41	16,70	
Louisiana	28	21.10	4	17.60	46	15.20	
Maryland	33	19.10	4	8.40	22	15.80	
Mississippi	33	12.00	-		31	11.80	
North Carolina	31	17.80	3	17.50	50	14.80	
Oklahoma	55	16.60	2	18.00	25	14.60	
South Carolina	14	14.30	5	16.60	26	13.90	
Tennessee	38	9.70	-		55	12,40	
Texas	133	16.00	5	18.40	73	16.00	
Virginia	33	11,40	2	18.30	33	15.80	
West Virginia	8	24.50	_		22	17.80	
District of Columbia	20	10.80	2	32.60	10	19.60	
West	475	20.70	69	32.10	254	18.10	
Arizona	20	16.30	-		19	15,30	
California	278	24.50	49	36.10	92	22.70	
Colorado	25	17.10	2	17.40	23	16.70	
Idaho	6	14.80	1	8.90	7	15.00	
Montana	7	11.30	_		14	15,60	
Nevada	8	8.20	3	20.50	3	14.90	
New Mexico	31	13.80	4	19.30	31	11.80	
	33	17.10	1	18.00	25	16.30	
Utah	16	16.80	_	-	8	16.10	
Washington	49	18.60	9	20.30	31	19.30	
Wyoming	2	15.40	_	-	1	11.20	
Oregon Utah Washington Wyoming	76 49	16.80 18.60	_		8		

	AGGREGATE U. S.		HORTHEAST		NORT	NORTH CENTRAL	SOUTH		WEST	
	No. of	Cost (in	No. of	Cost (in	No. of	Cost (in	No. of	Cost (in	No. of	Cost (in
TYPE OF CONSTRUCTION	bldgs.	thousands)	bidgs.	thousands)	bldgs.	thousands)	bldgs.	thousands)	bldgs.	thousands)
Wood frame	80	\$ 15,497	12	\$ 1,167	9	\$ 1,305	16	\$ 1,075	42	\$ 11,779
Wood frame, brick veneer	138	70,107	27	14,338	30	32,281	54	6,599	26	14,570
Load-bearing masonry walls, wood constr.	220	71,179	39	9,325	36	22,662	76	15,002	6.6	23,873
Load-bearing masonry walls, steel constr.	1059	592,884	244	163,512	319	182,660	390	179,056	106	67,656
Masonry walls, steel construction	1587	1,625,870	453	612,913	438	447,844	527	372,148	159	140,517
Reinforced concrete constr. (lift-slab)	209	190,904	32	37,456	55	44,888	54	29,727	61	71,476
Reinforced concrete construction	1821	2,077,732	274	306,211	466	617,693	460	403,583	564	658,657
Quansets and temporary steel buildings	10	798	1	50	3	366	4	157	2	225
Other construction	146	55,736	12	5,103	25	8,429	52	14,020	54	27,914
Types of construction not reported	801	673,452	199	190,260	285	268,951	213	104,904	94	72,561

(More news on page 36)



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New folder SS-21 gives physical and structural properties, safe uniform loads, dimensions and erection details. Send for your *free* copy today.

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#### UNVEIL MASTER PLAN FOR MONTREAL'S PLACE VILLE MARIE

A master plan by I. M. Pei and Associates of New York City for a 21-acre business, commercial and entertainment center in the heart of Montreal (AR, Jan. 1957, page 36) has been made public by Webb and Knapp (Canada) Ltd., developers, and Canadian National Railways, owners of the site. In the first stage of development, which it is expected will get under way almost immediately, Webb and Knapp would lease about a third of the site to build "Place Ville Marie," a commercial complex set on a spacious plaza and dominated by a 40-story glass and metal skyscraper (also designed by I. M. Pei) which would be the tallest and largest building in Canada. In latter stages, additional office and parking facilities and a great transportation center for the area would be built; in this phase, C.N.R. said Webb and Knapp would "have no option or preference" with respect to the area but will have equality of opportunity" in submitting proposals for its development.

The three-block site covered by the overall master plan, in the very heart of downtown Montreal, is bounded by Cathcart, University, St. Antoine and Mansfield-Inspector streets-the area around C.N.R.'s central station and above its tracks. The block to be developed by Webb and Knapp in the first phase is bounded by Mansfield, Cathcart, University and Dorchester streets. The proposed plaza, to be reserved for pedestrian traffic, will connect with St. Catherine Street by a tree-lined mall, extending the line of a widened McGill College Avenue and creating a vista terminating in the distance in the outline of Mount Royal. The master plan takes into consideration long-standing plans of the City of Montreal for widening of McGill College Avenue, Cathcart, Mansfield and University Streets.

Future developments proposed by the plan include a 20-story office building, a large five-story C.N.R. general office building, with parking for 900 cars on three levels beneath; a three-story transportation center to integrate all rail, air, bus and automobile facilities in the terminal area, with a roof designed as a helicopter landing area; and a two-way moving sidewalk, capable of handling 7200 people per hr in each direction, running along the spine of the whole terminal area, joining all three blocks.

(More news on page 40)



Master plan for development of 21-acre site around CNR Central Station in Montreal (overall view of model below) would begin with construction of "Place Ville Marie" complex (above) dominated by 40-story glass and metal office building which would be the tallest in Canada and including two-story shopping and theater building (foreground), 15-story office building (right) and sunken open air skating

rink and restaurant. CNR's Queen Elizabeth Hotel, now nearing completion, is in right background. View below looks north to Place Ville Marie, shows proposals for later construction — transportation center with helicopter landing area on roof (foreground); CNR general offices (convexroofed building in center); and (opposite skyscraper) 20-story office block, with Queen Elizabeth Hotel at its left



Aetna Custom Steel Doors, built to architects' specifications, add Individuality and prestige to the House of Seagram, 375 Park Avenue, New York, as they have to many outstanding structures over the past 55 years.

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Mies von der Rohe and Philip Johnson

Associate Architects:

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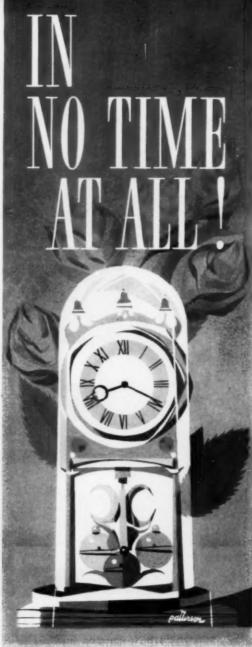
AETNAPAK advantages boil down to this: custom quality with stock service at stock prices.

Here's what AETNAPAK means to you, design-wise and dollarwise.

- 1. Over 200 type-and-size combinations of swing and slide doors-16 basic types in standard widths and heights.
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## THE RECORD REPORTS

(Continued from page 36)

#### VANCOUVER CHURCH DESIGNED TO MEET CHALLENGE OF SITE

In this project for the Highlands United Church, North Vancouver, B. C., reports architect R. William Wilding, "the site conditions provide a real opportunity to design a rather dramatic group of buildings, since it is deeply cut into by a year-round-running creek. The





#### new permaCushion\* floor floats on resilient pads

That's right, this floor floats. It's entirely separated from the slab and all other structural members. It actually rests on air channeled GRS cushioned pads to assure permanent resiliency and to prevent moisture transmission from slab to sleepers. With these pads and the void between flooring and wall, the floor system expands and contracts without buckling or cupping and achieves a degree or dimensional stability unmatched by virtually any other floor!

PermaCushion floor systems offer other benefits, too: the natural beauty and durability of hard rock maple, dry, cross-ventilated subfloor and remarkable long-run economy. When planning a gymnasium or auditorium, consider the advantages of the PermaCushion free-floating floor system. For details, write Robbins Flooring Company, Reed City, Michigan. Attn: Dept. AR-1157.

Available vacuum-treated with preservative by Dri-Vac method.

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Manufacturers of Ironbound\* Continuous Strip\* Maple Floors

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two floors have ample light and ventilation with a view overlooking the wooded creek. The lower floor contains parish hall, Sunday School rooms, kitchen, lounge and heating room. The upper floor has the sanctuary, seating 350, with choir for 25 set to one side of chancel. Minister's study, church office and choir rooms and multi-purpose room are located at the rear of the chancel. Design features red cedar on all exterior walls, cedar decking on flat and pitched roofs and glulam arches in sanctuary. Special lighting effect is obtained with tinted cathedral glass in the sanctuary."

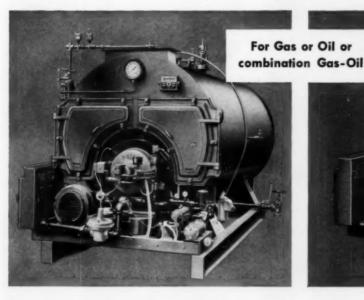


#### \$10 MILLION FEDERAL UNIT IS ANNOUNCED FOR TORONTO

The largest and the second costliest Federal building ever erected in Canada has been announced for Toronto: Shore & Moffat are the architects. To be known as the Mackenzie Building, the structure will occupy two thirds of a city block and measure 160 by 300 ft at the ground floor, extending upward in twin towers 12 and 15 stories high. Estimated cost is \$10 million. The center of the ground floor has been designed as a large open landscaped court accessible and visible from all three bounding streets and containing a central glazed block to house escalators and elevators. Structure is steel with exterior skin of porcelain enamel and anodized aluminum above a base of black granite. The new building will house the Post Office Department and other government offices.

(Continued on page 44)

# How to use a **Petro** forced draft firing system





# Petro firing unit integrated with matched Scotch boiler as a complete boiler-burner unit

Here is a complete firing system available in a single unit. Installation consists of little more than securing the unit to the boiler and attaching fuel and power lines. No pitted boiler settings; no high stack. It is a thoroughly engineered unit, with all vital components matched and mounted on a single base. Includes burner (for gas, oil, or dual-fuel), factory mounted, refractory tile burner throat, secondary air volume control, motor driven forced draft fan and electrical control panel.

# Petro firing unit can be applied to all types of boilers. Entire system factory built, wired and tested.

This is not a simple conversion burner—it is a complete firing system. Units are engineered to operate either under normal firebox draft conditions, or under positive pressure in sealed firebox boilers which are designed for operation under furnace pressure. A wide range of sizes is available for high or low pressure steam, or hot water for heating, processing and power requirements. Models are available for firing No. 6 or lighter fuel oils, and all types of fuel gas.

#### A Petro engineered system brings maximum dependability and operating efficiency

Savings in installation time, fuel, maintenance and operating costs are the result of Petro's half century record of thorough DEPENDABILITY. The

most wanted features in a modern firing unit are contained in a Petro complete packaged forced draft burner system. Engineering service covers the nation.

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Tests prove the Life-Line® "A" motor is the quietest available for air-conditioning applications and other places where motors must be quiet. Studies in soundproof laboratories prove the operating sound level of these Life-Line "A" motors is lower than any other standard motor.

Precision manufactured parts, dynamically balanced, assure dependable service. Possible vibration is minimized by rugged mounting of this smooth-running Westinghouse motor. Pre-lubrication coupled with Life-Line "A" fortified insulation and close-tolerance machining offers the nearest thing to a maintenancefree motor available.

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#### THE RECORD REPORTS NEWS FROM CANADA

(Continued from page 40)

Flying Dutchman Motel, Kitchener, Ont. - on a heavily traveled highway between Windsor and Toronto. Cost, \$250,000. Architects, Bragman & Hamann of Toronto



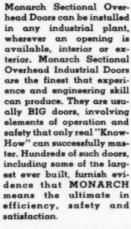
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#### CONSULTING ENGINEERS IN CONCURRENT SESSION

The second phase of the annual meeting of the Association of Consulting Engineers of Canada Inc. (the first, including elections, was held in Montreal in February), occurred at the Banff Springs Hotel coincident with the annual meeting of the Engineering

Action was taken to set up a new, tri-province Prairie Chapter of the Association. N. Lawrence was named chairman, R. O. McLellan secretary. and E. H. Davis (Alberta), W. G. Mackay (Saskatchewan) and J. Sumner (Manitoba) councillors.

One hundred members and guests attended the annual dinner. Afterwards, matters relating to membership and activities were discussed. Vice President J. G. Frost of Montreal, took the chair in the absence in England of President James F. MacLaren.

#### ARCHITECTS CHOSEN BY THE LUCK OF THE DRAW

An unorthodox method of choosing an architect to design a \$200,000 office and warehouse was repeated recently in Hamilton, Ont.

At a dinner tendered by the company, Frank Doyle, vice president, merchandising division, Canadian Pittsburgh Industries Ltd., drew the name from a paint can. In the can were the names of a group of Hamilton architects, all members of the Hamilton Chapter of the Ontario Association of Architects.

Architects William R. Souter & Associates, whose name was drawn, were commissioned to design and supervise erection of the 25,000-sq ft branch office and warehouse.

Canadian Pittsburgh has used this method of choosing architects for many of its branch buildings. It has 50 warehouses, four paint plants, two mirror

(Continued on page 46)

### How high velocity

#### provides maximum comfort

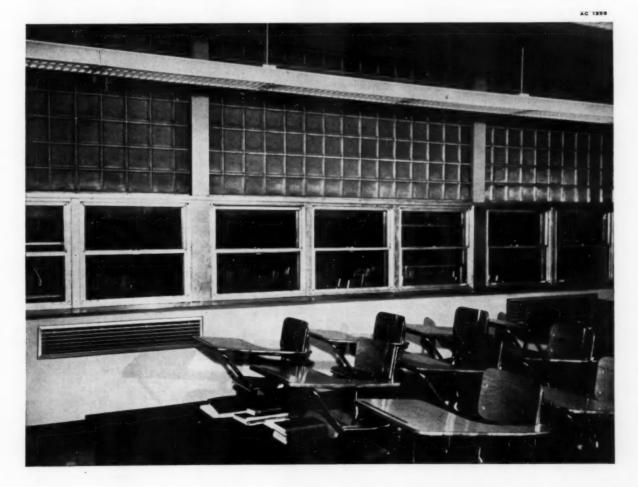
#### for schools

The Anemostat All-Air High Velocity system of draftless air distribution offers many important advantages for heating and ventilating schools. • High velocity units, used with smaller than conventional ducts, save space and money. They substantially reduce sheet metal required, can be installed faster, at less cost. Since there are no coils in All-Air HV units, clogging and odors are eliminated. • Anemostat All-Air HV operate entirely with air processed in the main equipment room; there is, therefore, no need to break through the walls of the building for prime air make-up. The Anemostat All-Air HV units eliminate fans, filters, and electric motors in the school rooms. Units are quiet, need a minimum of maintenance from custodians. • On these pages are typical installations in which the Anemostat All-Air High Velocity system has been used successfully. Application data on your specific school heating, ventilating or air conditioning problem is available from Anemostat representatives or from the home office.

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loaded facilities, it will pay you to consult your "Custom-Bilt by Southern" Dealer *Now!* Highly trained specialists in food preparation and serving equipment, they will gladly work with you to help solve your student feeding problems.

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## THE RECORD REPORTS

(Continued from page 44)

plants, one metal plant and a window glass plant located across Canada.

"It's the fairest way we know of to choose our architects, because architects are among our best friends," Mr. Doyle said

#### ENGINEERS LAUNCH EFFORT TO UPGRADE TECHNICIANS

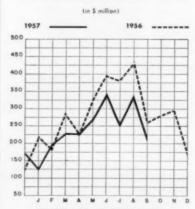
Six successful applicants for status as engineering technicians received their certificates from Premier Leslie Frost of Ontario last June 5.

A campaign to raise the standards of engineering technicians was launched by the Association of Professional Engineers of Ontario at its last convention. The idea is believed to be original, and is being studied in other provinces and the U. S.

There are approximately 20,000 technicians in Ontario who are eligible for official recognition. Successful applicants are certified by a board affiliated with the Association of Professional Engineers. The panel of examiners is composed of five members, two from the staff of Ryerson Institute of Technology and three from industry.

Premier Frost said that there is great interest in the program because it will help employers choose competent persons for specific jobs. "Skilled men without formal engineering education have played a full part in the development of the province," he said.

#### Contracts Awarded: Comparative Figures



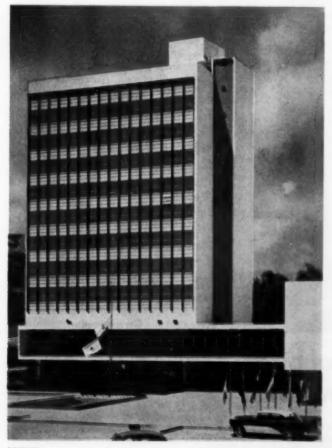
\*Compiled by the Editor and staff of The Building Reports from information collected by Maclean Building Reports

(More news on page 48)



### From Canada to Panama...

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Porcelain enamel on Armco Enameling Iron is being specified for all kinds of buildings in all climates because it meets so many requirements of contemporary architecture.

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#### ABOVE:

The Palacio Legislativo Justo Arosemena, Panama City, Panama

Architect: Ernesto de la Guardia, III Engineer: Roberto Lopez Fabrega Porcelain Enamel: Seaporcel Metals, Inc. Long Island City, New York

#### RIGHT:

Office Building for The Commerce General, The Canadian Mercantile, and The Canadian National Insurance Companies, St. Hyacinthe, Quebec

Architects: David and David, Montreal, Quebec Porcelain Enamel: Seaporcel Division General Steel Wares Limited London, Ontario



#### NEW-HOME AREA TOPS OLD IN FHA's LATEST REPORT

The size of new homes finally has caught up with and exceeded the size of existing dwellings in the Federal Housing Administration's data on Section 203 activities. The newly-published annual report indicates that the typical new single family home in 1956 had a calculated area of 1064 sq ft. This was the first year, since such tabulations were begun

by FHA in 1948, in which the typical *new* home was shown to be larger than the typical *existing* home, which had but 1060 sq ft.

The report showed that seven out of every 10 new homes coming under FHA's jurisdiction last year had areas of from 700 to 1199 sq ft with a heavy concentration in the 900 to 1099 sq ft range. Existing homes showed a wider distribution: about 28 per cent in the 800 to 999 sq ft range, and the same portion in the 1000 to 1199 sq ft range. Existing homes also were relatively more numerous than new homes both in the smaller and larger area groups—under 800 sq ft and over 1400 sq ft.

The newly constructed dwellings insured in 1956 were, on the average, about five per cent larger than those involved in 1955, FHA noted. The gain was said to be a reflection of the greater proportion of houses with areas of 1100 sq ft or more, coupled with the decline in the share of homes with smaller space. At the same time, the average existing home in these calculations increased only two per cent in size over 1955.

The typical 1956 home as described by the agency was a one-family structure containing the 1064 sq ft exclusive of space in basement, attic or garage. It contained five and one half rooms, of which three were bedrooms. Seven of every 10 whose mortgages were insured by FHA had garage facilities.

During 1956 there was a continuation in the development of the upward trend in the size of most of the items which comprise the characteristics of home mortgage transactions, FHA said. Although marked increases can be noted for both new home and existing home transactions, in most instances the typical new home changes were about twice as large as those for similar changes in existing homes.

Average estimated property value was \$13,080 and estimated rental value, \$101.84.

In the rental field last year, FHA approved three principal types: walk-up, elevator and one-family row, semi-detached and detached houses. Four fifths of all projects involved were one-family developments that contained more than one half of all proposed dwelling units in this category. The 1956 rental projects also had more units (46 per cent) in one-family type projects than in any other type of structure. The largest proportion (nearly seven tenths) of the Section 207 units approved involved walk-ups.

It was further noted in connection with Section 213 management-type projects that 72 per cent of the units approved during the year were contained in elevator structures. This was a return to the established trend for this type of operation, the agency explained. Section 213 involves cooperative projects.

(Continued on page 348)



# How to make tropical birds feel at home in Minnesota!

A chilling chollenge? Yes, but to the craftsmen down at Crown Iron Works, the answer was simple after they boned up on birds preparatory to building a happy home for 65 tropical featherlings in Minneapolis' fabulous Southdale shopping center.

Result—a king-sized cage, 21-feet high, now towering over Southdale's garden court. The moment you see this striking cage you'll appreciate how Crown's skill pays off happily and handsomely. You'll see Crown's zest for thoroughness elsewhere in Southdale, too—in dramatic bronze escalator guard rails, in cantilever stairways and in hundreds of "invisible" installations—all delivered on schedule.

If you'd like to see this dependability and enthusiasm for perfection reflected in your job, give the men at Crown a call. They'll delight in solving your fabricating problem.

Southdale Shopping Center—Architect: Victor Gruen, Associates of Los Angeles. Contractor: Johnson, Drake & Piper of Minneapolis



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#### ARCHITECTURAL RECORD

#### WESTERN SECTION

Western Editor: ELISABETH KENDALL THOMPSON, A.I.A.
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#### HANG TOGETHER-OR SEPARATELY?

Robert Berne, a Denver architect, is the Western Mountain region member of the A.I.A. public relations committee. The relation of the various parts of the design field is a vital part of the profession's public relations, since it becomes a quite public part of the whole operation of getting a building

As Mr. Berne says, "Singleness of purpose is undoubtedly the most important part of the team's cooperative effort. It may be that this purpose is to satisfy the client's wishes: for if the client's wishes are not satisfied, by this team, he will find another team that will satisfy them. True, another combination may perform like a junior varsity. But how can anyone put faith in a varsity team that lacks coordination and does not have the best man for the job in each position?"

No architect today can be "complete architect" and at the same time "complete engineer." Human limitations and the complexity of the building field today make such a combination of functions and work an impossibility as it was not centuries ago when the architect was indeed as his title termed him to be, the "master builder."

It seems to me that now is the time to change this outmoded designation. "Master planner" more closely describes the function of today's architect, particularly as it is planning and design rather than craftsmanship which today is the architect's stock in trade.

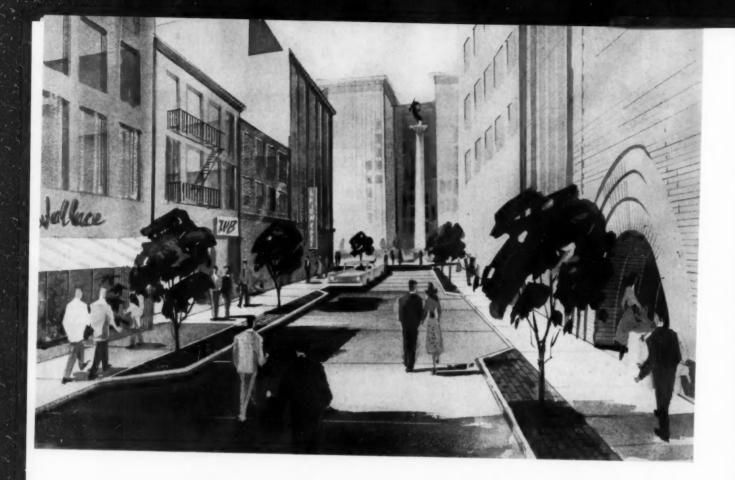
As the master planner, today's architect is the captain of the design team which produces the building — a team whose members represent the various design professions, each incomplete in itself, each dependent on the other, each an essential component of the group. As captain — or coordinator — the architect balances the talents of each one against the sum total of the job's requirements, recognizing and respecting the positions and functions of each profession without himself attempting to supplant the highly specialized contributions that each can, and should, make, exploiting the particular abilities of the individual in the field he represents. In his own field, the coordinator will have his hands full if he concentrates on the specific functions — primarily that of creating beauty and effecting order in the environment which he alone can impart to a building — of the architect.

However, if the building project today requires the specialists of many different fields in the design process, these specialists need the architect, too, not only as coordinator and captain but as initiator of the building concept — in short, as the creator of its design.

What can make such diverse interests and talents work together in the accomplishment of a building project? Only singleness of purpose, courage of conviction, and mutual respect can do this. I suggest that each of us — architects and colleagues in the design professions — reevaluate his beliefs and his attitudes, especially as to singleness of purpose.

All of us in the design professions are mutually dependent, and the sooner we recognize this, the better; for if we do not hang together, I am convinced that, most assuredly, we shall all hang separately.

Robert Berne



### CITIES LARGE AND SMALL PLAN FOR PEDESTRIANS

Streets were made for people, not the other way around. But today people have a harder and harder time using the streets on foot: heavy traffic makes it a hazardous and time-consuming thing just to cross a street. When it becomes an unpleasant and inconvenient process to shop in a congested area, the effect on business can be economically serious whether the area is in a metropolis or in a small town. How to "revitalize downtown" — that is, how to restore easy pedestrian circulation — is a problem without respect to size, location, or community wealth.

Recently two cities — one large, the other small; one in California, the other in Oregon — have shown what can be done toward imaginatively and inexpensively solving the problem. Maiden Lane, a short street in the heart of downtown San Francisco, has been re-designed to make a visit to it a pleasant pedestrian experience, and thereby increase the business of the shops that line it. Its sidewalks have been widened at intervals with brick-paved strips in which are planted sycamore trees; parking is controlled by providing for it only between planting strips; and the street is closed to traffic between 11:30 A.M. and 2:30 P.M. every day except Sunday.

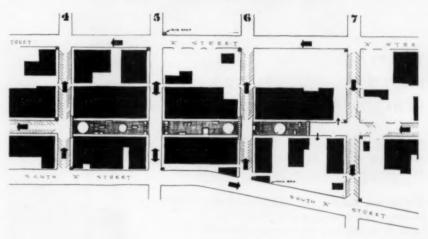
Financed by the merchants of Maiden Lane, the \$40,000 remodeling of the street was designed by Welton Becket and Associates, architects, and Don Clever, industrial designer, both located on the Lane.

Springfield, Oregon, a town with a population of 13,500, has a different solution which it tried out this fall for 10 days under the sponsorship of the Springfield Chamber of Commerce and with the cooperation of the city's officials and the State Highway Commission. The town's central business district, in a state of decay from competition by outlying shopping centers and the attractions of the city of Eugene just across the river, was being further strangled by the 10,000 cars and trucks that passed through it every day.

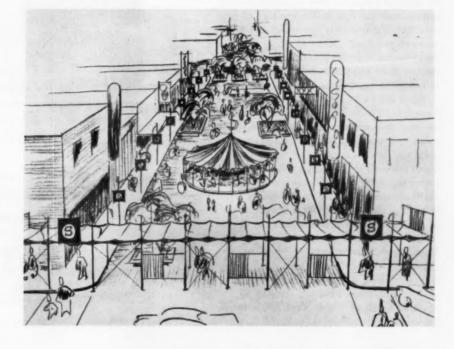
During the 10-day experiment, through highway traffic was by-passed to the North, and local traffic to the south, of Main Street; minor streets were converted to parking lots with access from one end only. On the premise that "today's shopper shops only where it is convenient and interesting to do so," landscaping (in temporary planting boxes) and benches were installed along the five-block section; art and industrial exhibits were presented; music was piped into the area; pony rides and special entertainment for children were daily features. Total cost for the planting boxes, steel pipe barriers, signs and benches, was \$2800.

At the end of the 10-day period, the shopping public appeared to agree with the plan's originator, architect Don Lutes of Springfield (who is also chairman of the planning commission) and his partner, planner John Amundson, that downtown can be a "Shoppers' Paradise."

CALIFORNIA (left): San Francisco's Maiden Lane between Kearny and Stockton Streets, now looks like this, replanned as a pedestrian promenade. Once a back-door alley, the Lane now is a fashionable business and shapping street, closed to traffic during mid-day hours, and planted with shade trees



OREGON (right): Springfield's Main Street, clogged with traffic day after day, enjoyed a vehicle-free 10 days during "Shoppers' Paradise," an experiment in putting basic planning principles to work full scale. Re-routing highway and local traffic opened shopping area as pedestrian mall in which displays, children's features, landscaping and benches created festival air likened by Springfield News to old-fashioned "Saturday night around the Square"





"Symbol of the new Richmond," the Plaza is city's first component in projected 337 acres of residential redevelopment. This 10-acre pilot project on site of former war housing includes "town houses" (left), single houses and rental units for sale. All have street landscaping, achieve maximum privacy with fenced back yards

# THE PLAZA: WEST'S FIRST COMPLETED RENEWAL PROJECT

Donald L. Hardison and Vernon DeMars, Architects; Barrett Homes, Inc., Owners; The Barrett Construction Co., Builders

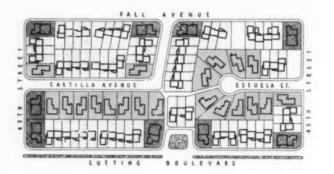
RICHMOND, CALIF., the small town that became a city overnight when World War II made it a shipbuilding center, is the first Western city to complete an urban renewal project and the first in the country to provide dwelling units for sale under the urban renewal program. Other Western cities — Sacramento, San Francisco, Los Angeles — started their programs earlier but have yet to complete any units.

When the Plaza was dedicated last month, two of its 97 units were already occupied and 56 other buyers were impatiently waiting to join the new residents. Most of the project's units are "town houses" (once called "row"); about a fourth are detached houses; nine are rental units. All have separate fenced back yards accessible from living and dining areas. Prices run from \$13,600 for a "town house" to \$15,650 for a detached house; the duplex (with two-bedroom rental unit) is \$22,000. Minimum lot size is 30 by 100 ft.

The use of the "town house" as a predominant unit and the redesign of street patterns increased land use density to half again as much as the average single family conventional subdivision.



e Jerner's

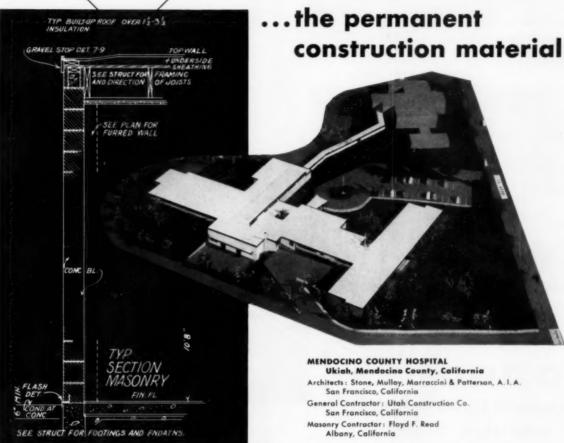




Plan of typical "Town House"



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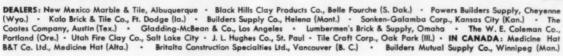
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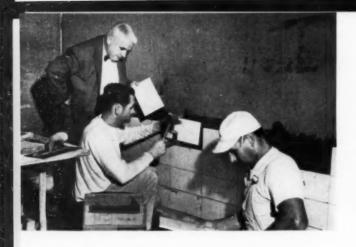
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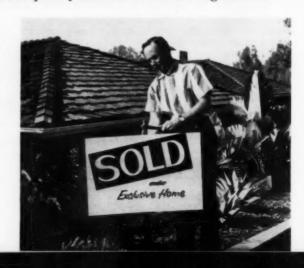
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#### MOUNTAIN ARCHITECTS DISCUSS NATURE IN ARCHITECTURE

Nature in architecture would seem to be so worked over a subject that speakers would be hard put to find anything new to say on it. Yet at the sixth annual conference of the Western Mountain Region, A.I.A., a whole programfull of speakers managed to treat the subject in a decidedly refreshing way. Possibly one reason for this was that it was an unusual group of speakers; for another, each treated the subject in its fundamental aspects rather than its most superficial manifestations.

As Robert Alexander said, "I very much doubt that any architects spend much time looking at dandelions — no matter how much has been ascribed to the dandelion as the inspiration for architectural and structural form."

With two exceptions - a sculptor and a painter - the speakers were all architects. The discussion consequently was almost entirely architectural with enough impact from other fields to keep the subject from being too circumscribed by one interest. Architects Robert E. Alexander and Cornelius M. Deasy from Los Angeles, Whitney Smith from Pasadena, James M. Hunter from Boulder. Colo., A.I.A. president Leon Chaletain of Washington, D. C. and architecteditor John Knox Shear of Archi-TECTURAL RECORD were balanced off by sculptor Robert Russin of the University of Wyoming and Toni LaSelle of Texas Women's University.

#### Honor Awards Program

In the annual Honor Awards program of the region, Hobart Wagener of Boulder, Colo., received the only Honor Award for his First Presbyterian church and two merit awards for the Mercantile Bank and the Casey Junior High School, all in Boulder. Merit awards also went to William C. Muchow and Murrin and Kasch, Denver architects, for the Merino Elementary school at Merino, Colo., and James M. Hunter of Boulder for the Colorado Insurance Group Building, Boulder.

#### Organic Architecture

"The law of the organic world," said Cornelius Deasy, speaking on "Organic Architecture," "is that for each set of environmental conditions there is a logical form. Nature never transplants one form to another environment. In parallel with this is our need for developing of a regional style: nature would never subscribe to the notion that one style could be universally applied, nor that one space could universally be suitable to all purposes.

"Organic architecture is not one of curves, stone or redwood, but of utter logic plus. The ocatilla cactus evolved its highly specialized means of obtaining what it needs; the hornet would put us to shame in the insulation system it has inherently. Nevertheless, to follow the problem through logic only is not organic but superficial architecture. The lesson for us is the transformation of logical solution into memorable architecture.

"Organic architecture requires each of us to be our own source of inspiration. It isn't necessary for us to guess which prophet is the messiah. But it is necessary for us to understand how and why the forces of nature work so that we follow through to a logical solution of our problems."

#### Function Often Follows Form

Taking issue with him, Robert Alexander said that "nature as seen by the naked eye is not very orderly; it is wild and untrammeled on its own, and natural form is very often the result of accident. As an architect, I was taught to produce order — and I don't approve of accidental building forms. But I do think that form can be devised — ordered — which is purely arbitrary and yet lifts the human spirit, and I think it is fine when it does this."

Citing the Japanese house as an example of order in architecture, Alexander said "The Japanese culture at one time had a beautiful unity and its use of a module did not produce monotony as we seem now to face in the curtain wall. On the contrary, it inspired the greatest diversity and variety from one simple, unifying scheme.

"We are nuts if we think that just by satisfying the needs of man we come up with architecture. Solving circulation problems and getting a good plan don't in themselves make a beautiful building. Form is what moves people and creates new functions."

More important than nature in design, said Whitney Smith, is the nature of design. Suitability to purpose, he said, is one of the things we too often forget, but this is something nature

does not forget. We need to think of nature as total environment, and this means that in architecture we include landscape architecture as well, he pointed out.

Artist and scientist are both working on the edge of a mystery, sculptor Robert Russin suggested. But the artist has become so preoccupied with the new knowledge of the structure of the atom, for instance, and with new materials, new techniques, new concepts of space and so of form, that he sometimes forgets man. The architect cannot forget man and remain an architect.

#### Objectives of Architecture

Speaking at the annual banquet of the conference, John Knox Shear, Architectural Record's editor-in-chief, enumerated the factors on which the interpretation of architecture depends: purpose, place and time, considered in terms of the visual characteristics of size, shape, surface and sometimes of situation, unless it is unique. The objectives of architecture he listed as expedience, sensation and logic—"a refreshing change," he suggested, "from 'commoditie, firmnesse and delight'."

In the case of purpose, he said, there are extremes of polarities of particularity and of generality. At the particular pole he places architects who, given a program, are most enthusiastic about what is unique, concrete and real in the program. At the general end he would place those architects who are stimulated by the things which are universal, abstract and ideal. Most architects fall somewhere in between the two poles, he believes. The same extremes can be set up for time and place.

"One of the things that most depresses me," he said, "is that we seem to be operating under a system of taboos growing out of a rational approach to architecture. There are some architects who wouldn't sandpaper wood; others would use logs but wouldn't peel them or paint them. Others would paint unless the paint were rubber based—rubber being from trees, therefore natural. However, sides haven't yet been chosen up on aluminum.

"The approach to architecture should be sensual first, and intellectual second. That's the way people read architecture — why don't we design it that way?"



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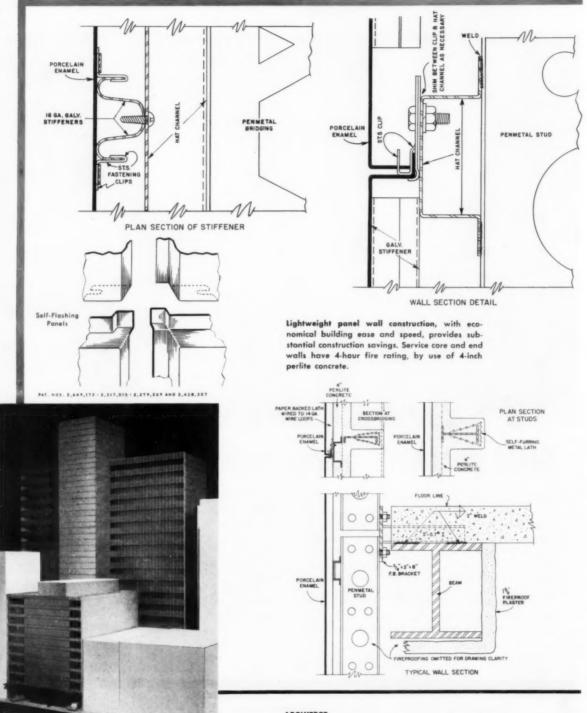
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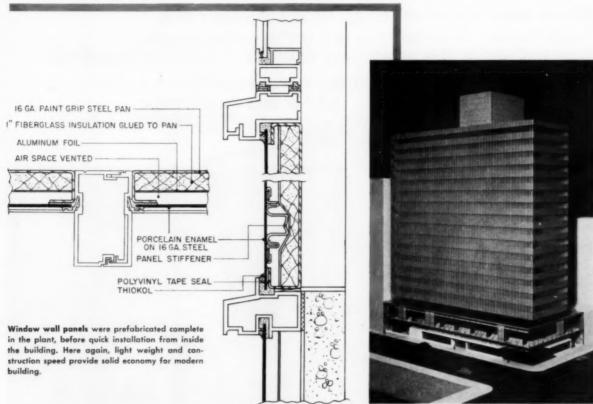
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### WASTE SPACE

This year's Art Festival in San Francisco was emphatically architectural in its exhibits—and this couldn't have happened at a better time. For the first time since 1952, when the festival was held in Maybeck's leaking Palace of Fine Arts, it rained—unseasonably and unexpectedly. And what could make architecture more popular than a storm?

There was more structure apparent at this festival than at any in recent years: two geodesic domes, a bandstand, two pavilions, a "garden star" and the A.I.A. chapter's "Art in Architecture" exhibition of architectural models.

The domes were the most eye-catching of the exhibits, but the other structures and models also drew crowds. The smaller of the domes, 25 ft in diameter, designed by San Francisco architects Marquis and Stoller, was a "do-it-yourself" project, erected in two hours by four men. The other, a 39 ft diameter ply-dome, was developed into an exhibition area by architect Evelyn Kosmak and her husband industrial designer George Kosmak, fabricated by Berkeley Plywood Company and erected by architect Tom Moore of Denver (recently licensed by "Bucky" Fuller to erect his domes).

The children of the Columbus Avenue and North Beach area were, probably, the most fascinated spectators of all during the erection of Tom Moore's dome — a job which took somewhat longer than did the Marquis and Stoller dome because the dome was bigger and at no time were there ever four men at work on the erection. Not only did the children stand and look: they helped to build it, putting in bolts, screwing on nuts, helping to lift panels into place, wide-eyed, smiling, pleased with the job.

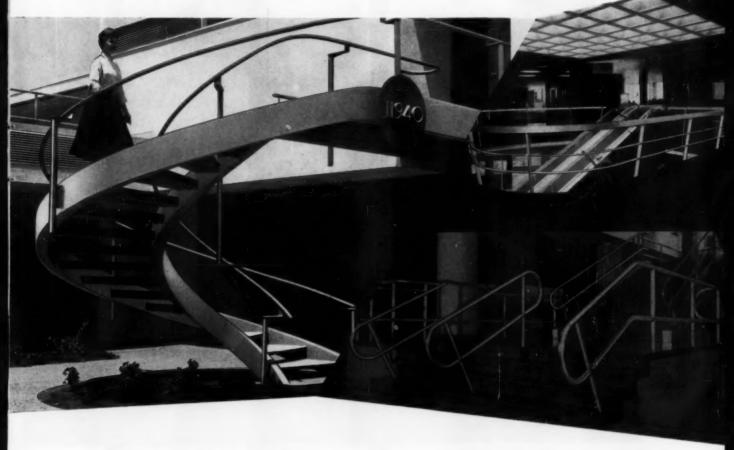
Bucky Fuller, in town to see the two domes on his way to Coronado where he was a keynoter at the California Council convention, said this was the first time to his knowledge that children had helped to put up one of his domes.

What delighted him most, though, was that again and again, the children asked, "Is it to be a merry-go-round?" On which he commented, "That's the nicest, most complimentary thing they could ask. It's like having some one say to you 'Are you a princess?"

#### Vive La Difference

Between Los Angeles and San Francisco there is a difference, and many people have tried to put their fingers on what it is that so marks these two Western metropoli. It isn't just indoor-outdoor living, or smog, or freeways (San Fran-(Continued on page 48-20)





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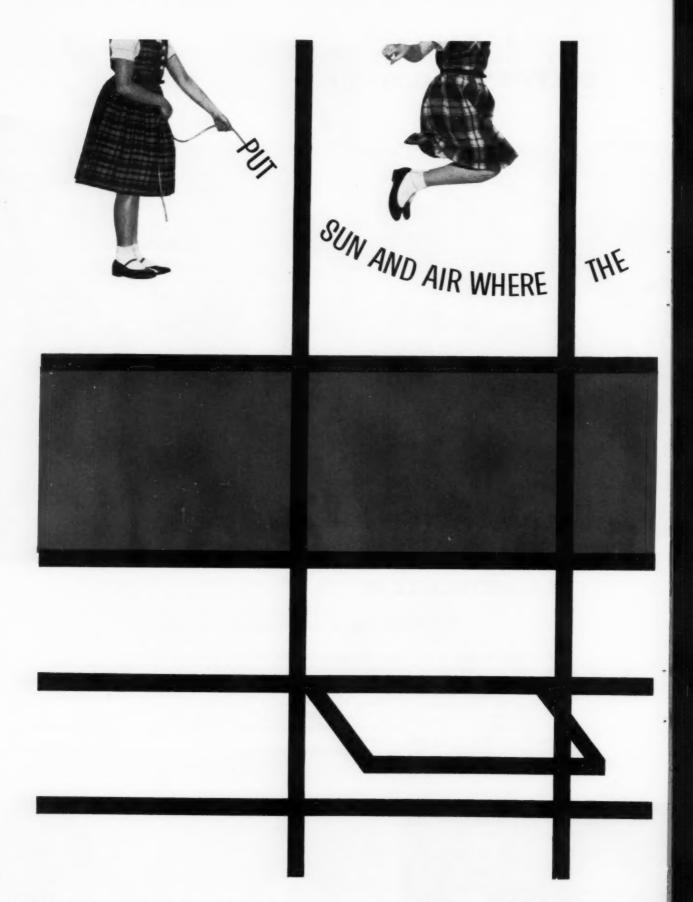






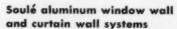
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#### WASTE SPACE

cisco has some of each, these days). And perhaps that's because any such answer seeks to give the difference more as a factual explanation when really it is more fundamental.

A moppet from the greater Southland area traveled northward with her mother last summer to visit the land of hills and fog, did all the favorite tourist things rode the cable cars, ate at Fisherman's Wharf, went to Chinatown. Reporting on all of this on the first day of school. she described all the thrills and chills of the visit. When the teacher asked her what seemed to be the biggest difference between her native heath and the city by the Bay, she had her answer ready the neatest packaging of the characteristics of two cities yet made, not based on buildings, color, climate but on the human equation: "In San Francisco the ladies all wear dresses and in Los Angeles they wear pants!"

#### Rus in Urbe

Speaking of differences, what has made us in this country ignore for so long the difference between town and country and, ignoring it, try to make of urbanism a rural experience?

What is a city? Do we really know? While we talk of honesty in design, have we thought about the integrity of the city? Actually, how many of our cities have a peculiarly urban character?

The Roman epigramist Martial summed up the concept which has largely governed our concept of the city when he coined the phrase "rus in urbe"—the country in the city. For a long time we could afford this concept; but what about the future? We're running out of space, for one thing; for another, shouldn't we practice in urban residential planning what we've preached in design in general—integrity of design?

Older cities in older countries have learned this lesson; their cities directly reflect the fact that men who live in communities do not live as men do who live as isolated units, and that the collection of men in communities will not, in fact cannot, resemble the individual, isolated unit. We have shut our eyes to this; we have shuddered at the Ville Radieuse concept; we have left row houses to low-cost housing projects. forgetting the magnificent semi-circle at Bath, the delightful squares in London. The town house once was a handsome and elegant row house. We could remember with profit and great timeliness these earlier solutions - remember, but face forward in our own contemporary solutions E. K. T.

## Window Walls by Michel & Pfeffer



# ...in the new Hewlett-Packard plant, Palo Alto

Architectural beauty, clean, simple lines and fast economical installation all are combined in Window Walls by Michel & Pfeffer.

For assistance with every detail, from preliminary plans to final installation, call Michel & Pfeffer.

Hewlett-Packard, Page Mill Road, Palo Alto, California Architects: Clark, Stromquist and Potter Contractor: Wells P. Goodenough





## Michel & Pfeffer Iron Works, Inc.

Metal Windows and Doors Division 212 Shaw Road South San Francisco, California PLaza 5-8983

#### SOUTHERN CALIFORNIA HONORS FIVE ARCHITECTS

Top honors in the Southern California chapter A.I.A. Triennial Honor Awards program went to the architects and owners of five buildings (in as many classifications) built within the last five years and located in Southern California. The architects are:

Edward Killingsworth and W. Waugh Smith, Long Beach, for the Richard Opdahl residence, Long Beach, and for the offices of a group of attorneys in Long Beach:

Smith and Williams, Pasadena, for the religious education building and the children's chapel of the Neighborhood Church, Pasadena:

Pereira & Luckman, Los Angeles, for the engineering office and cafeteria buildings for Northrup Aircraft, Inc., Hawthorne, Calif.;

Welton Becket & Associates, J. E. Stanton, Associate, for the Police Facilities Building, Los Angeles.

The jury - actor and art collector Vincent Price and industrialist Charles Ducommun and architects George Nelson, John Carl Warnecke and Philip Will. Jr. - selected the winners after visiting 40 buildings chosen by 24 chapter members who had previously won

honor awards from the 200 entries submitted in the program. Citations of merit were awarded to the 35 other buildings in the final stage of the program. Maynard Lyndon was chairman of the exhibition and awards committee.

#### FREEWAYS ATTACKED AT CITIES MEETING

Freeways are making free with our city streets because the highway commissions have run out of the kind of projects properly in their province, a Berkeley, Calif., city planning commission member charged at the recent meeting of the League of California Cities in San Francisco. John S. Burd, Jr., said that the commissions are "making their own plans for freeways and by so doing are remaking our plans, developing metropolitan plans for us, taking us apart one by one.'

Freeways are supposed to run between urban centers, he said, but they are now "invading our tree-lined streets."

Another speaker, Max G. Funke, manager of San Francisco's Park Department called freeways "the principal demons menacing recreational lands," and emphasized the need of resistance by park officials to their encroachment.

Gas tax funds, now applicable in California only to highway construction, should be released from this restriction so that they could be used for construction of rapid transit and other means of solving the transportation problem rather than for the construction of more freeways only, according to Gerald O'Gara, former state senator.

### PROFESSIONAL NEWS

New Firms, New Addresses

Walter Wagner, Fresno, Calif. architect and engineer, announces formation of a partnership with six of his associates: Paul Harris, architect and civil engineer; James A. Blavne, mechanical and electrical engineer; Henry DuPertuis, architect and manager of the firm's Merced office: Paul Shoenwald and Will Thomas. architects, and Harry Bode.

Harry Saunders and Kaz Nomura have been made associates in the firm of A. Ouincy Jones and Frederick E. Emmons, architects and site planners of Los Angeles.

H. E. Bovay, consulting engineers, of Houston, Texas and Spokane, Wash., have moved their Northwest office to 933 West Third Avenue, Spokane.

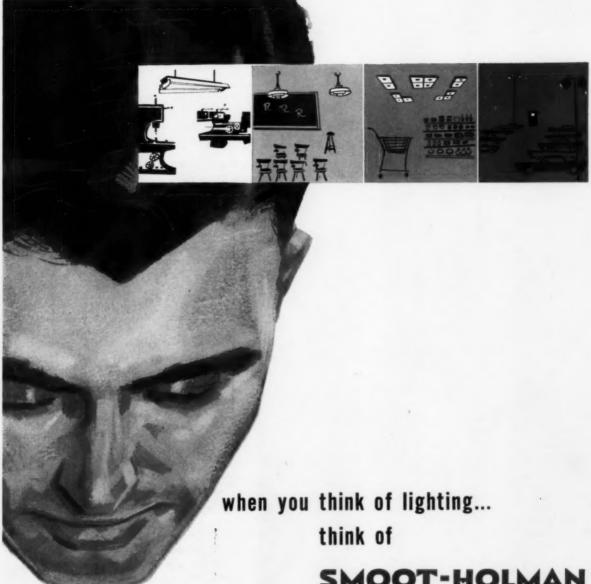


To Mr. Romano, complete telephone planning is a must in quality home construction. Buyers look for it, and in Mr. Romano's own words, "Meeting customers' demands is one of the best ways to successful selling. That's why some of my most recent homes have as many as 8 telephone outlets." And it's also why other leading Western architects and builders include concealed wiring and plenty of phone outlets in their original plans.

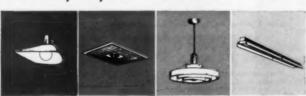
## **Pacific Telephone**

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It pays to include Telephone Planning in every home you build!



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PROPER LAYOUT MADE EASIER! Send for your free SMOOT-HOLMAN "Lighting Guide"... an auto-calculator to compute the required lamps and fixtures for any room...for any lighting job!



#### BERNARD RALPH MAYBECK

BERNARD MAYBECK, the most imaginative of the San Francisco Bay Area's architects, died October 3 at his home in the Berkeley hills. He was 95 years old, but although age had brought frailty of body, his mind was as sharply aware of current events, architectural and otherwise, as ever. He could and did discourse at length on new buildings in Berkeley. scorning those which "observe modernism as a sort of code."

Professionally retired many years ago, he continued to design in his outdoor "studio" - a drawing board sheltered by a tarpaulin - in the wild garden in front of the small house which he designed and built of gunny sacks dipped in cement and hung on wire netting.

Maybeck received the A.I.A.'s Gold Medal in 1951 for his contribution to the development of an American architecture. Among his best known larger buildings are the Palace of Fine Arts in San Francisco, the First Church of Christ Scientist in Berkeley, the Packard showroom in San Francisco, and Principia College, Elsah, Ill. Although the Christian Science Church is generally credited with being his masterpiece, he first became known in the Bay Area for his residences, most of them built on steep hillsides and all of them stamped with Maybeck's belief that art comes from the heart and that to imitate is the architect's worst sin.

Born in New York City February 7, 1862, Maybeck studied for five years at the Ecole des Beaux Arts in Paris, then returned to this country and worked in the offices of Carrere and Hastings in New York and H. Page Brown, in San Francisco. He was appointed instructor in architecture at the University of California in 1898, the first in the university's history. He opened his own office in 1903 and was in active practice until the early 1930's.

### WESTERN PRODUCTS IN THE NEWS "Wood Finish" Coatings

Development of new patterns simulating fine wood finishes, suitable for use on almost any surface, has been announced by Zolatone Process, Inc. of Los Angeles. Colors of the new series of coatings are keyed to match the warm tones of both light and dark woods: blonde, maple, mahogany and walnut and some special types of wood colors. The simulated wood finishes are extremely durable and resist chipping and scratching, according to their manufacturer.

The wood tones are achieved by the combination of up to five basic Zolatone colors sprayed over a specified foundation coating, with a restricted material spray nozzle at a minimum of 70 pounds air pressure to produce maximum break up of particles and maximum rate of spreading. The new series is useful for refinishing home furnishings and office equipment. Zolatone Process, Inc., Los Angeles, Calif.

#### Suspended Luminous Ceiling

A new non-modular suspended luminous ceiling has been announced by Integrated Ceilings, Inc. The ceiling consists of light weight panels of dimensionally-stable polystyrene plastic suspended on wires, combined with louvers of circular design. According to the manufacturer, Infinilite permits a minimum of dust collection because of its reverse bevel louver walls, and produces an estimated light transmission value of 83 per cent. The circular louver design is intended to act as a means of acoustical correction; additional noise reduction can be obtained by installation of non-decorative acoustical material above the Infinilite ceiling. The non-modular design eliminates any grid system and provides an even wall-to-wall ceiling. Standard panel size is 24 by 25 in. Integrated Ceilings, Inc., 9011 Beverly Boulevard, Los Angeles 48, Calif.

#### CALENDAR OF WESTERN EVENTS

- November 5-6: American Concrete Institute Tenth Regional Meeting, Benjamin Franklin Hotel, Seattle, Wash.
- November 13-15: Eighth national conference, American Standards Association, St. Francis Hotel, San Francisco
- November 18-19: Semi-annual Technical Conference, National Air Pollution Control Association, Fairmont Hotel, San Francisco
- December 1-22: Church Art Today, juried exhibition, Grace Episcopal Cathedral, 1055 Taylor Street, San Francisco

#### GOOD READING FOR WESTERNERS

Course in Making Mosaics. By Joseph L. Young. Reinhold Publishing Corporation, New York City. 1957. 60 pages. Illus. \$3.50. A well illustrated book which not only describes the techniques of making mosaics of various sorts, but amply illustrates the author's point that the art and the craft of mosaic-making are one and cannot be separated. Included are examples of the work by some of this country's fine mosaicists (Louisa Jenkins, Margaret Bruton, Roy Rice, Gino Severini of Rome, Juan O'Gorman of Mexico, and Young himself).

Lateral Force Building Code Requirements: recommendations of the Structural Engineers Association of Northern California. Published by Structural Engineers Association of Northern California, 417 Market Street, Room 320, San Francisco, Calif. Pages unnumbered. Includes tables and diagrams. \$0.50.

Handbook of Millwork Grades. 1957 Edition. Woodwork Institute of California. 1833 Broadway, Fresno, Calif. A handbook for field inspectors and architects.

### WESTERN SECTION

#### INDEX TO ADVERTISING

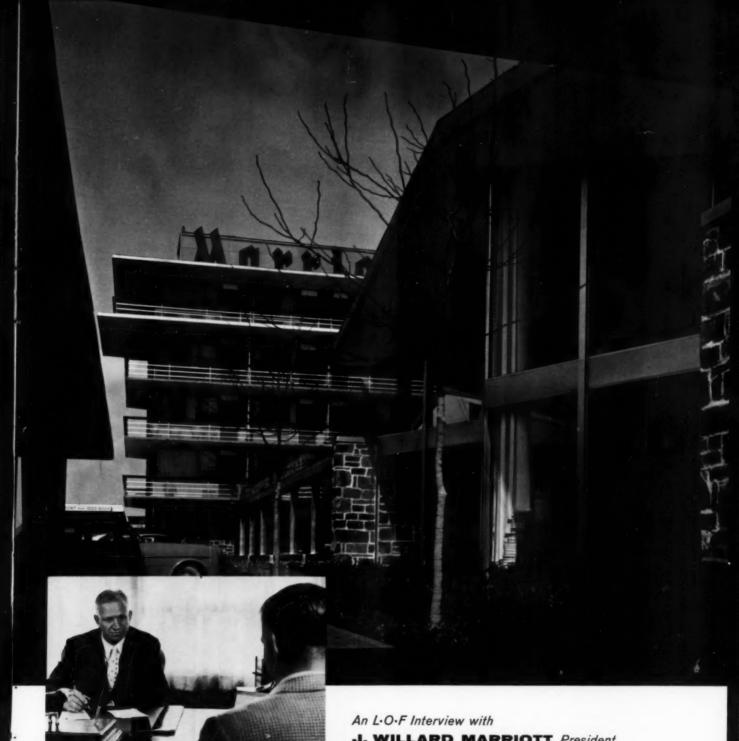
#### MANUFACTURERS' PRE-FILED CATALOGS

Catalogs of the firms listed below are available in the 1957 Sweet's Catalog Files as follows:

Architectural File (green) Industrial Construction File (blue) Light Construction File (yellow)

	Basalt Rock Co., Inc.	48-5
	Bayer, A. J. Company	48-17
	Columbia-Geneva Steel Division	48-11
	General Concrete Products, Inc	48-14
	Gladding, McBean & Co	3-8-9
	Hager, C. & Sons Hinge Mfg. Co	48-6
	Michel & Pfeffer Iron Works, Inc.	48-21
	Pacific Tel. & Tel. Co	48-22
	Porcelain Enamel Publicity Bureau 48-	-12-13
a	Robinson Brick & Tile Co	48-7
	Smoot-Holman Company	48-23
a	Soule Steel Company48-	18-19
a-ic	Sunbeam Lighting Co	115
	Tameo Corporation	48-20
	Thompson, E. A. Co., Inc.	48-16
a-ic	United States Steel Corporation	48-11
	Weber Showcase & Fixture Co., Inc	48-15

Western advertising offices: LOS ANGELES, Bob Wettstein, 672 S. Lafayette Park Pl.; PORTLAND, Bob Wettstein, 921 S. W. Washington St.; SAN FRANCISCO, Bob Wettstein, Howard Bldg., 209 Post St.



J. WILLARD MARRIOTT President HOT SHOPPES, INC., Washington D. C.

Its site, size and style collaborate to make the Marriott Motor Hotel a striking new spectacle in Washington, D. C. Located on U. S. Highway 1 at the Arlington end of the Twin Bridges over the Potomac, the Marriott is right in the middle of the District's Virginia front yard.

Hot Shoppes, Inc., which has \$5,000,000 invested in the Marriott, took full advantage of the strategic location by making it not only the largest motor hotel built to date (360 guest rooms) but one of the most arresting, architecturally. Completed in January, it was designed by Joseph G. Morgan, A.I.A.

## Subject: MOTOR HOTELS



Question: You have barely begun operation, but would you care to say anything about the Marriott's success to date?

Mr. Marriott: It has been a fine success in occupancy. We have been filled almost every night since the cherry blossoms opened the Washington tourist season.

Continued on next page



Question: Do you think your fine location is responsible for the high rate of occupancy?

Mr. Marriott: Being where we are—in Washington and at this particular spot—certainly helps. But the physical attractiveness of the Marriott is a most important factor, too. People buy what they see and like. The good design of the Marriott is a strong invitation to people to stop and stay here.

Question: They make their first stop at your glass-enclosed registration office outside the hotel. How does this drive-in method of registering work out?

Mr. Marriott: It is, of course, a great convenience to motorists to be able to register without getting out of their cars. Beyond that, we think they are less hesitant to stop and inquire about our rates, accommodations and so on, when they see they can do so right from their cars. It's true that talking to them through glass is a little impersonal, so our clerks have to be very cordial

and take care not to offend when we're filled. But it works out fine.

Question: While being registered, passengers have a clear view into the dining room across the way. Isn't that good?

Mr. Marriott: It most certainly is. A good place to eat is on every motorist's mind, and they can't help seeing our dining room through the big plate glass windows. Conventional hotels are apt to tuck dining rooms in some plushy, exclusive corner where guests are timid about going. We display ours, and the modern openness—plate glass windows facing the pool and patio outdoors—makes the room attractive to people. It sell meals.

Question: This same feeling of openness is characteristic of the design of most of your Hot Shoppes, isn't it?

Mr. Marriott: Yes, we have found that for popularpriced restaurants, the "seeing in and seeing out" feature is an important part of the design. So we have used big plate glass windows wherever we could.



Customer convenience par excellence . . . registration without even leaving the wheel. Registration clerks are protected from weather in the glass-enclosed office.



Rooms at the Marriott feature big windows for pleasant views and a feeling of spaciousness. They are double-glazed for guests' comfort and quiet.

Question: Your guest rooms, too, have large windows and they are double-glazed. Why?

Mr. Marriott: Two panes in every window, set in neoprene stops, solves the noise problem. From inside our rooms, one can just faintly hear the planes, as if they were miles away, taking off from the National Airport nearby, or the trains that run nearby, or heavy highway traffic in front. The windows, doors, and wall structure are all designed to make Marriott rooms quiet—and they are.

Question: You've been serving meals to the public successfully for many years. What trends do you see in serving people's hotel needs?

Mr. Marriott: As can already be seen, more new motor hotels than conventional hotels will be built in or near the heart of our cities. These two- to four-story motor hotels and the smaller, more rural motels will be upgraded. Rooms will be more luxurious, nicely decorated, well furnished and have a feeling of spaciousness. Upgrading rooms will mean higher rate of occupancy and higher revenue. At least we think so, and we propose to build more motor hotels like the Marriott.

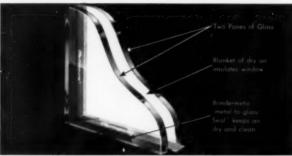




The light, airy feeling of the Marriott is beautifully expressed in the main lounge. Patrons look through a huge window wall to a patio and swimming pool.

## L.O.F GLASS FOR MOTOR HOTELS









• For complete information on any of these L·O·F products, call your L·O·F Distributor or Dealer (listed under "Glass" in the yellow pages). Or write to Libbey Owens Ford Glass Company, 608 Madison Ave., Toledo 3, Ohio.

### PARALLEL-O-PLATE

To keep distorted reflections from spoiling the appearance of your building, use Parallel-O-Plate Glass in the windows. It is twin-ground for more freedom from distortion. The glass in the two demonstration windows shown here is backed with black composition board to simulate the mirror effect of windows in a building. In the window at the left, glazed with Parallel-O-Plate, the reflections are mirror-perfect. In the other, glazed with sheet glass, note the distorted reflection.

#### THERMOPANE®

For maximum comfort and for heating and air-conditioning economy, use *Thermopane* insulating glass in windows. The heat loss that you would get through ordinary glass is cut almost in half. Drafts are reduced to increase comfort close to windows. *Thermopane* even deadens outside noise that would distract building occupants. For maximum air-conditioning efficiency, specify Heat Absorbing Plate Glass in the outer pane. *Thermopane* is available in over 100 standard sizes to fit most standard sash.

#### VITROLUX\*

What could go better with windows than glass? This new color-fused, heat-strengthened polished plate glass for spandrels gives the whole facade a oneness of luster and maintenance-free beauty. To illustrate the effect, we laid out four colored samples plus a piece of clear plate glass (at top) and reflected a building in them. Notice the unity in the reflections. *Vitrolux* comes in 16 standard colors plus black and white. Standard maximum panel size: 48" x 84". Special orders up to 60" x 84". Thickness: ½" plus ½" minus ½".

#### TUF-FLEX\* DOORS

These frameless, clear-glass doors seem to invite visitors into a building. And they can withstand, with virtually no maintenance, all of the traffic they help create. Made of ½"-thick or ¾"-thick tempered plate glass, they are 3 to 5 times tougher than regular plate glass of the same thickness. There are 16 types in finished sizes up to 48" in width and 108" in height. Tuf-flex Doors are furnished complete, equipped with cast bronze or alumilited aluminum fittings which are designed to take standard pivot hinges and builders' hardware.



FOR CURTAIN WALLS

AP-703

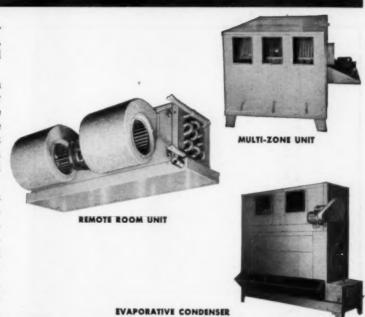


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## THE RECORD REPORTS: CONSTRUCTION COST INDEXES

### Labor and Materials

U. S. average 1926-1929=100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

ATLANTA

Period	Resid Brick	lential Frame	Apts., Hotels Office Bldgs. Brick and Concr.		cial and Bldgs. Brick and Steel	Resid Brick	lential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Factory Brick and Concr.	cial and Bldgs. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1946	181.8	182.4	177.2	179.0	174.8	148.1	149.2	136.8	136.4	135.1
1947	219.3	222.0	207.6	207.5	203.8	180.4	184.0	158.1	157.1	158.0
1948	250.1	251.6	239.4	242.2	235.6	199.2	202.5	178.8	178.8	178.8
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	265.2	262.2	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	274.9	271.8	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5 -	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
June 1957	316.5	306.5	329.8	341.8	335.4	239.8	238.0	246.1	249.4	251.6
July 1957	321.0	310.7	336.8	349.5	344.6	243.6	241.3	252.0	255.6	258.8
Aug. 1957	321.0	310.7	336.8	349.5	344.6	243.6	241.3	252.0	255.6	258.8
Aug. 1957	159.9	% 153.8	increase over 19 157.7	939 162.0	164.9	182.3	% i	increase over 19 165.0	)39 162.4	173.3

ST. LOUIS

SAN FRANCISCO

Aug. 1957	165.9	% in	150.2	1939	157.2	173.0	178.8	icrease over 159.8	160.9	169.7
Aug. 1957	293.0	284.6	297.0	308.3	306.1	288.3	276.8	305.0	318.0	314.2
July 1957	293.0	284.6	297.0	308.3	306.1	289.7	278.9	306.1	318.4	314.8
June 1957	292.6	284.2	295.9	307.8	303.4	287.3	275.0	303.5	316.2	310.2
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.6
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0	259.7
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8	216.1
1948	227.9	231.2	207.7	210.0	208.1	218.9	216.6	208.3	214.7	211.1
1947	202.4	203.8	183.9	184.2	184.0	193.1	191.6	183.7	186.8	186.9
1946	167.1	167.4	159.1	161.1	158.1	159.7	157.5	157.9	159.3	160.0
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.6	104.9	100.4

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

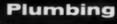
$$\frac{110-95}{95} \approx 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.



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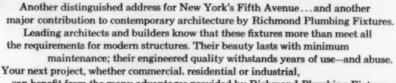
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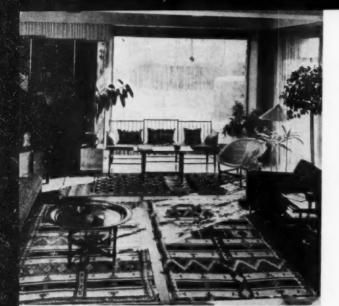


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#### REQUIRED READING

### COMPARATIVE INTERIORS

Betty Pepis' Guide to Interior Decoration, Reinhold Publishing Corp. (N. Y.), 1957, 215 pp. illus. \$6.95

Architects and interior decorators are seen carrying on a long-standing but friendly "war" in this interesting book. The strife between the two camps arises from their necessarily different attitudes toward interior decor.

As Miss Pepis herself puts it: "... In our own country, the two types of modern design coexist, develop on parallel lines. They satisfy different needs in different personalities. One is essentially sensual, soft, luxurious — this is 'decorator's modern.' The other is sparer but not necessarily sparse; it is more intellectual than emotional, more concerned with the structure than with the surface. This brand of modern (which can be luxurious) is the architect's domain." She adds that their very different training is the primary cause of the gulf between architects and decorators; nevertheless, they

Glass treatments by designer Edward Wormley, above, and architect Eduardo Catalano, below, "illustrate the intense differences between the . . . points of view."



Builders' Homes for Better Living, By A. Quincy Jones and Frederick E. Emmons. Reinhold Publishing Corp. (N. Y.) 1957. 220 pp., illus., \$8.95

Architects Jones and Emmons, whose firm in the seven years since its inception has won thirty-two national and regional awards of merit, have set out in this timely book to beat the blight of builder-house look-alikes and dreary suburbias.

It is frankly admitted in the book that (regardless how distasteful the prospect may seem to some architects and sensitive members of the masses) the speculative market for builder houses will probably continue to mushroom along with suburbs.

The authors see valid economic and social reasons for builder developments, so rather than waste words condemning them, they have sought to rid them of some potentially depressing and hazardous aspects by applying sound architectural and town planning principles.

Their proposal is for an early and effective coordination of builder, architect, engineer and site planner. In order to achieve this, they have shown builders, through a variety of examples, the economic value of good planning and good architecture.

(Continued on page 370)







BOOTH MEMORIAL HOSPITAL Flushing, Long Island, N. Y. Architect: William Francis Schorn. General Contractor: Caye Construction Co., Inc, Painting Contractor: Supreme Decorating Corporation.

LYNCHBURG GENERAL HOSPITAL Lynchburg, Va. Architect: Samuel Hannaford & Sons and Pendleton S. Clark, Associate Architects. General Contractor: Virginia Engineering Company, Inc. Painting Contractor: Shaw Paint & Wallpaper Co., Inc.





NANTICOKE STATE HOSPITAL Nanticoke, Pa. Architects: Schmitt & Lippi. General Contractor: Stan Seiple, Inc. Painting Contractor: William W. Davis Co.



LUTHERAN HOSPITAL St. Louis, Mo. Architects: Froese, Masck & Becker. General Contractor: MacDonald Construction Co. Painting Contractor: Stanley Hanks Painting Co.



TEMPLE UNIVERSITY HOSPITAL
Philadelphia, Pa.
Architects: James A. Nolen Jr. and Skidmore,
Owings & Merrill, Associate Architects.
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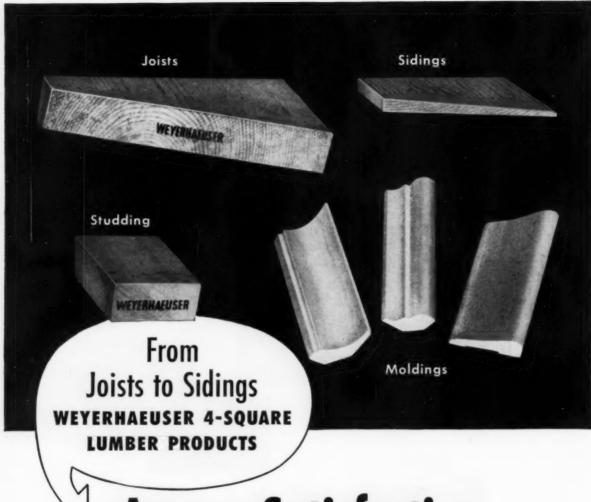


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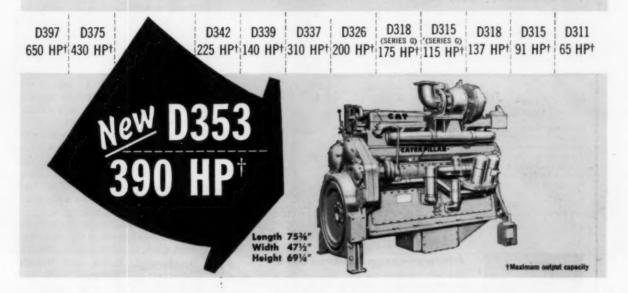
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#### REQUIRED READING

(Continued from page 58)

can learn from each other. Industrial designers fill a middle role, but a minor one, as they rarely do residential interiors.

Actually, Miss Pepis has produced a book that itself could do much to foster mutual respect between architects and decorators. Impartially and thoroughly, she exhibits the work of both in many well-chosen photographs. Her authoritative descriptions set forth the strengths and the weaknesses of the two, as on one page she shows a room by, for instance, Dorothy Draper, and on another, one by John MacL. Johansen. And naturally, the dual talents of men like George Nelson and Eero Saarinen, known for their work in both architecture and design, are celebrated.

Miss Pepis, former home editor for the New York Times, now lectures at the New York School of Interior Design. Her wide experience and knowledge have enabled her to make of her book not only a guide, but also a history. A chapter showing changing styles of interior decoration since about 1900 is followed by chapters on various modern room types; furniture fashions and fads; Scandinavian, Italian, and Oriental influences; and the latest trends. In a final section she equates the present gradual modification of "modern" architecture with a new type of interior decoration, one that is eclectic, yet unified by modern colors and textiles.

All in all, Miss Pepis' book will be valuable to anyone who studies it, from architect to decorator to bewildered home owner. In developing taste about interior decoration, it is certainly true, as Miss Pepis says, that "knowledge helps because it presents a point of reference. . . . A sensitive and well-trained eye helps, too, by making one aware of intrinsically good and bad proportions, of use and misuse of decoration." These observations are equally applicable to architecture — as is much else in the book.

On the other hand, Miss Pepis quotes as "the truest axiom of all" the statement: "Taste is more a matter of conversation than conviction." This aphorism definitely applies to interior decoration, but can it be said of taste in architecture as well? Whatever the answer, conviction is likely to arise from the conversations engendered by Miss Pepis' guide.

P. C. F.

(More reviews on page 370)



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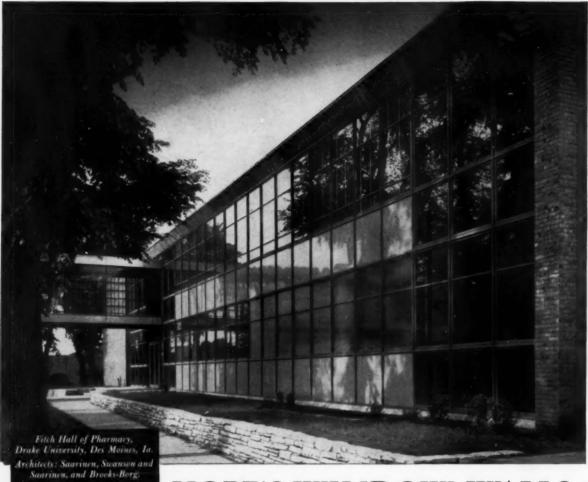
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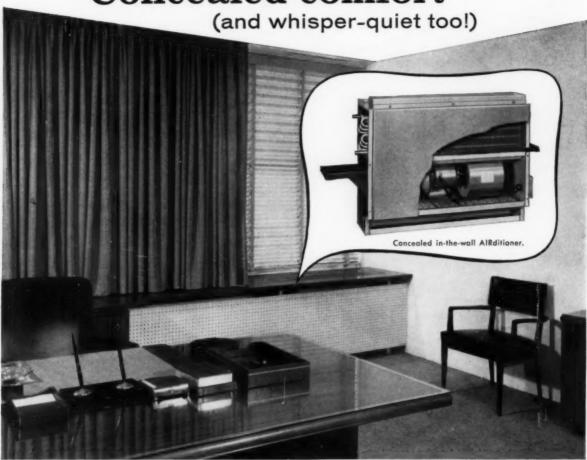
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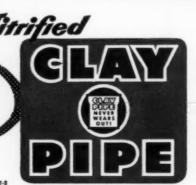
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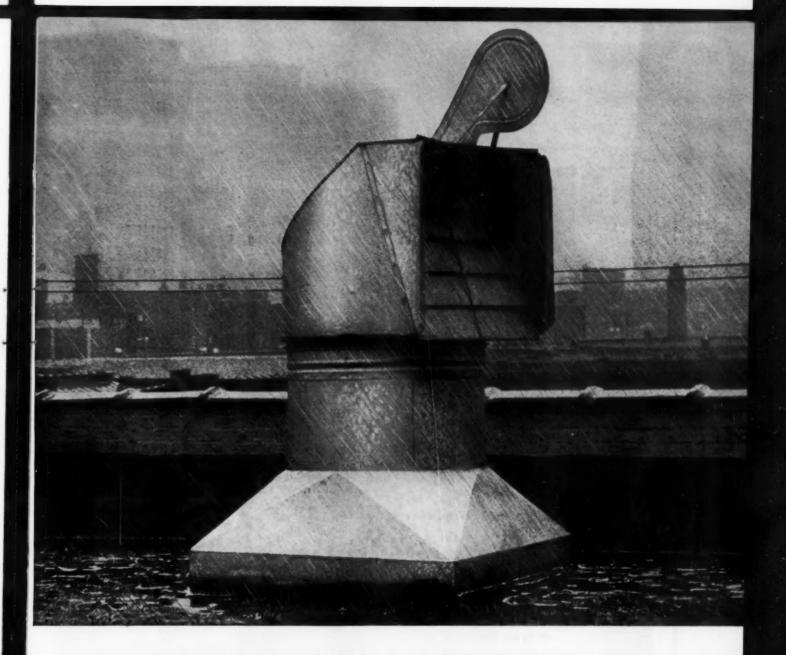
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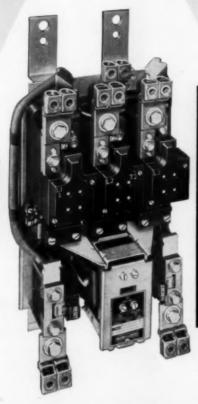
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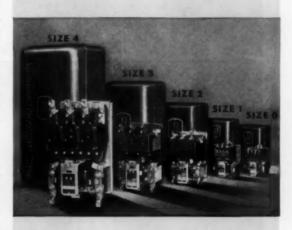
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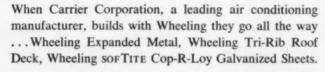
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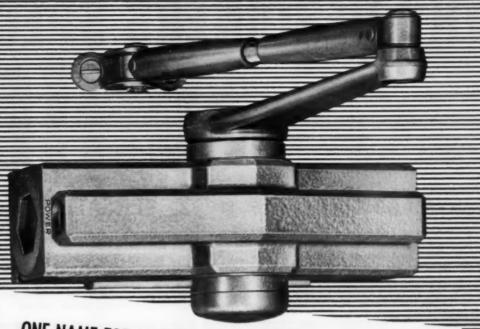
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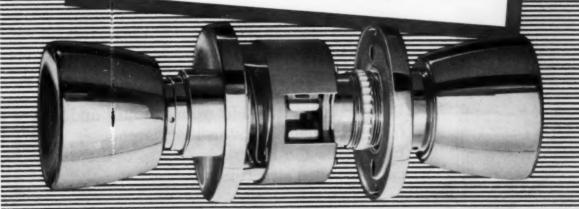
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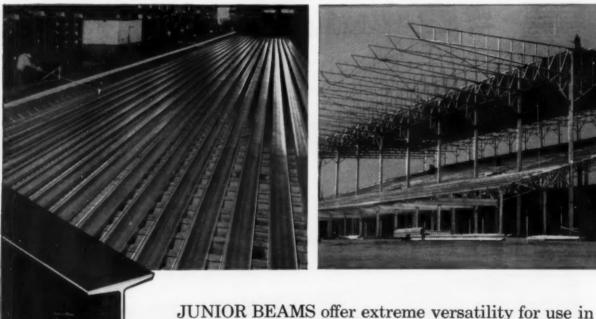
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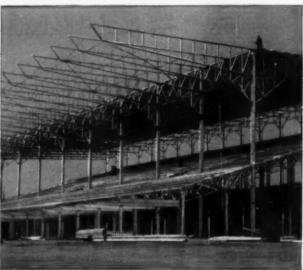
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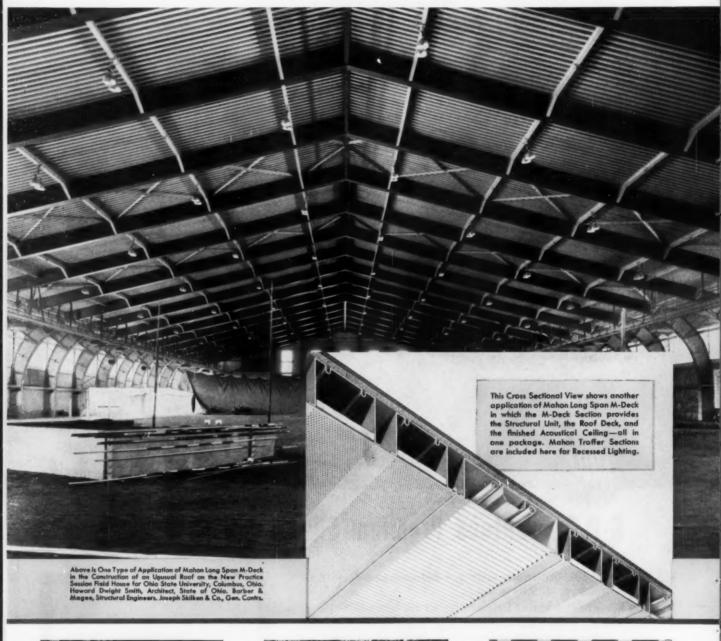
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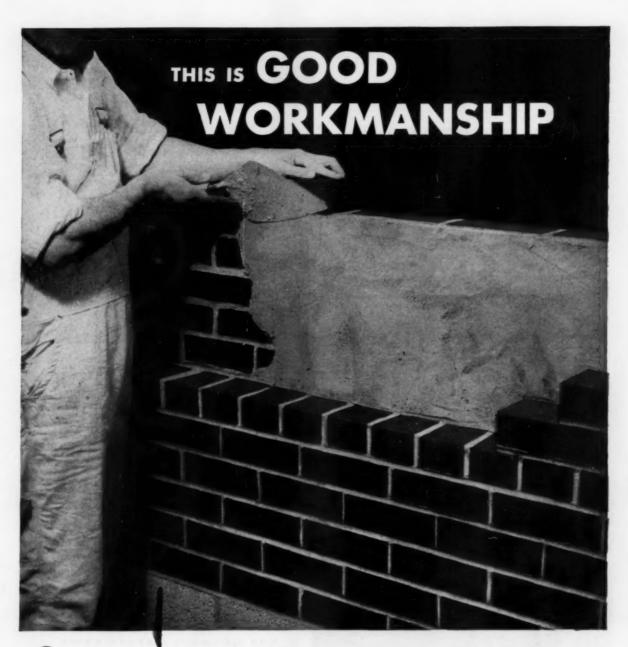
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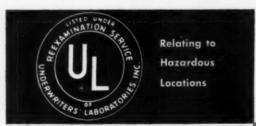
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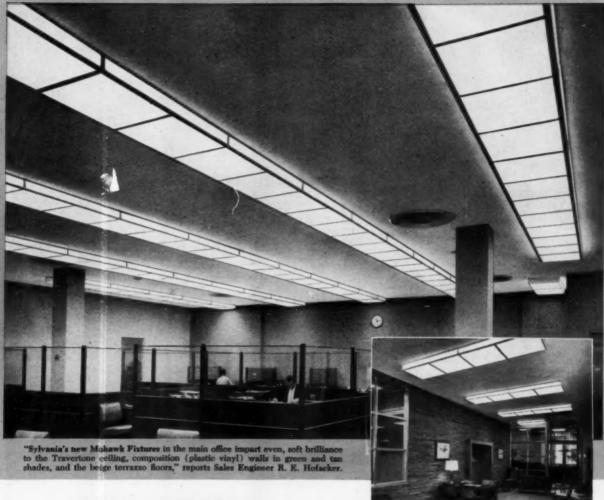
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"Our architects, Firestone & Cassidy, and our general electrical contractor, The J. P. Novatny Company, both of Akron, have assured us of valuable savings in installation because of the construction of these Sylvania fixtures."

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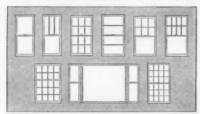


Russell House, on Meeting Street in Charleston, South Carolina, built in 1807, stands as a monument to that city's culture.

## Excellent Ventilation in Russell House Achieved with Double Hung Wood Windows



Relative inexpensiveness permits generous use of double hung wood windows with metal weatherstripping.



An endless variety of design can be achieved with double hung wood windows. They are easily shaped and their surface receives and holds any type of finish.

Nathaniel Russell demanded two things for his house, beauty and abundant ventilation. The finest architects and craftsmen were employed, regardless of cost, to give the Russells the finest establishment in Charleston. It was finished at a cost of over \$80,000.

Of particular interest in Russell House is the high middle story that is brought into proportion by the arches over the double hung wood windows. Also, balconies permit the tall double hung wood windows to open from the floor. Thus cumbersome verandas were avoided, and the ventilation demand by Russell was obtained.

As in the Russell House, modern homes use a predominance of double hung wood windows. To further improve the efficiency of modern double hung wood windows spiral, steel tape balances or a spring sash balance and weatherstrip combination are installed on all wood windows. Metal weatherstrip does not wear out or deteriorate, and can be easily and effectively applied to wood windows. Efficient operation of air-conditioners, so much in demand in modern homes, can best be had through the use of metal weatherstripped double hung wood windows. Properly installed, metal weatherstrip assures an air-tight house.

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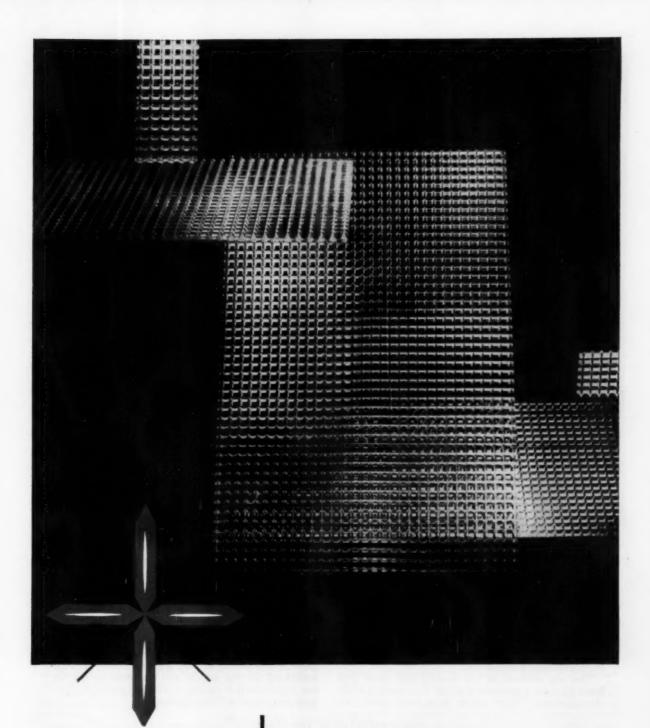
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Like complete details? Call your local Horn representative or write for Hornflex Technical Bulletin to Dept. H56-915.

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Cleveland Tramrail window-washing equipment offers a solution to the problem. It consists of a track at the top of a building, supported either by the roof overhang or by brackets attached to the wall, and a cage which can be traveled along the track, as well as be raised and lowered to any height. All windows can be reached and washed easily by one or two men working within the cage.

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When installed on new air-conditioned buildings, permanently fixed windows may be used instead of the more costly opening type, thereby netting savings often large enough to cover the entire cost of the equipment.

For further information write for Booklet No. 2022A

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Overhead Materials Handling Equipment

No ladders. No climbing through windows. No risky dependence upon belt or eyebolts. This man is safe. He is surrounded by a guard railing. His equipment is located conveniently. All windows are quickly reached by electric drives (manually-operated equipment also available). He can clean many more windows per day.



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Downstairs or up, woods of Western Pine mills create rich, livable interiors -- as this remodeled garden family room and attic by Stroberger demonstrate.



# "We like to work with the woods of the Western Pine mills— our customers like to live with them" Mr. Harold Stroberger, western Wood Products, Beaverton, Oregon

"There is no limit to the effects which we achieve with the woods of the Western Pine mills," says Mr. Stroberger. "Only the limits of the imagination restrict their decorative possibilities. We have sanded, rough-sawn and etched surfaces, and applied colors of every hue, singly and in delightful combinations.

"Each of the woods has its specific individuality — the knotty neatness of Engelmann Spruce, the rippling beauty of Larch, the trim surface of Douglas Fir, for instance. Yet all have that welcome high quality we have long learned to expect of products from Western Pine lumber mills." For more information on any of the woods of Western Pine mills, write to: Western Pine Association, Dept. 217-U, Yeon Building, Portland 4, Ore.

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Idaho White Pine Ponderosa Pine Sugar Pine and these woods from the Western Pine mills WHITE FIR - INCENSE CEDAR PED CEDAR - DOUGLAS FIR

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# bridge-like construction keeps FIAT years ahead in toilet compartment design

#### (1) LOAD EQUALIZER

Heavy channel reinforcing distributes load away from the top hinge—gives added support to the pintle. Provides permanent protection against unusual loads—specifically, when children hang from or swing on the door.

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Channel type reinforcing unit is interlocked with the panel edges—provides basic side-to-bottom support—anchors Life-Line\* Gravity Hinge in position—positively prevents door "sway."

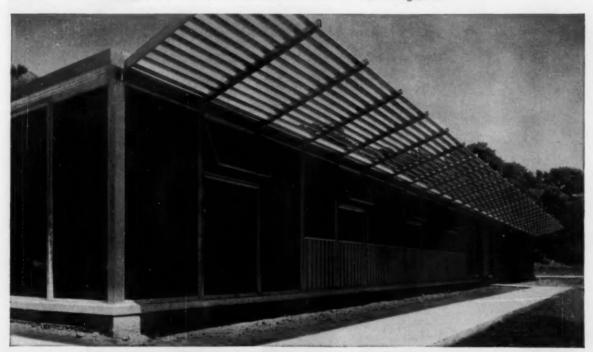
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Right—Efficiency is high all day in new drafting room of Aluminum Structures, Inc., because the glare reduction provided by AMERICAN LUSTRAGRAY sheet glass results in greater eye comfort. Below—Glare seen through opened entrance doorway at left is reduced approximately 50% by windows of AMERICAN LUSTRAGRAY at right of doorway. Note how the neutral gray tint of LUSTRAGRAY actually sharpens the view.



Below—Viewed from exterior, windows of AMERICAN LUSTRAGRAY provide an attractive appearance and interior privacy. Photo shows exterior of new plant-office of Aluminum Structures, Inc., Upper St. Clair Township, Bridgeville, Pa. Architects: Schell, Deeter & Stott, Pittsburgh, Pa. General Contractor: Dick Corp., Large, Pa. Aluminum Fabricator and Erector: Aluminum Structures, Inc. Glazier: Watson-Standard Co., Pittsburgh, Pa.



# **GLARE REDUCING SHEET GLASS**

For efficiency | appearance | economy | privacy

-the architects chose dimerican LUSTRAGRAY

Here's an example of how AMERICAN LUSTRAGRAY, a neutral gray sheet glass, has become a very functional part of modern building.

The owners of this spanking new industrial building wanted daylight without glare. LUSTRAGRAY gives them that—and at the same time provides a significant reduction in the transmission of solar heat. Result: increased task efficiency for occupants.

The appearance of LUSTRAGRAY has a very unique effect. Viewed from the exterior, LUSTRAGRAY is just dark enough to afford interior privacy and yet the occupant is provided excellent, undistorted vision. LUSTRAGRAY has an attractive, highly lustrous appearance with a minimum of distortion, and its neutral gray tint eliminates undesirable effect on interior or exterior colors. With AMERICAN's continuous drawing process, there is no variation in the color or quality of LUSTRAGRAY.

Significant economy is one result of the use of glass for wsw 6723

walls in place of other building materials, and glass lasts longer with practically no maintenance or deterioration in appearance.

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This aerial view of White Plains is only one section of one community in Westchester County. But it proves what's happening throughout this fabulous suburb of New York City.

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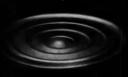
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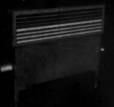


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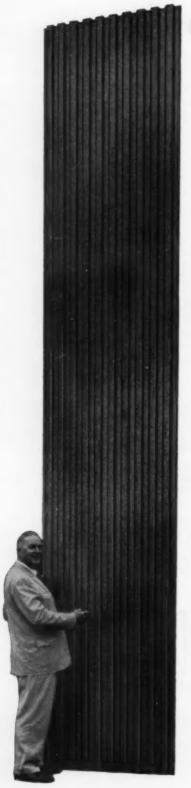






# **ALUMILINE ANNOUNCES**

### New Color Finish on Architectural Aluminum



A new, beautiful and long-lasting green finish on aluminum is now available to the architectural field. This new finish, a chemically formed coating integral with the metal, is produced by The Alumiline Corporation in accordance with the American Chemical Paint Company's Architectural Alodine\* Process.

The color is sunfast and long-lasting. The finish is corrosion resistant. It requires little maintenance. In addition to normal roofing, siding and curtain wall application, aluminum treated with the Architectural Alodine Process is widely used on airport hangars to reduce glare and on church roofs to simulate the patina of aged copper.

The Finishing Division of The Alumiline Corporation is an ACP-Alcoa<sup>†</sup>-approved processor. All Alumiline curtain wall, fascia and spandrel materials, as well as Alcoa Industrial Building Products, are available with this new color finish. Write today for detailed information and samples.





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Division of ENGINEERING PRODUCTS & SPECIALTIES, INC.

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\*Reg. T.M. of American Chemical Paint Company

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Picture a long-lasting, sunfast green color . . . a cool, harmonizing color that is as modern and beautiful as aluminum itself . . . and you picture the final finish that Alumiline Corporation, a division of Engineering Products & Specialties, Inc., can supply on aluminum.

The attractive color is produced by the ACP Architectural Alodine\* Process. It is a finish that enhances the appearance of aluminum and materially reduces glare. It requires little maintenance. Alcoa† recommends it for use on its Industrial Building Products. However, it can be successfully used to protect and beautify spandrels, curtain walls, doors, windows, decorative trims and paneling.

This chemically formed coating becomes an integral part of the metal, is less expensive than other commercial finishes, too. And the process requires less time.

For complete information and samples of the new colored aluminum, contact us today.

\*Reg. T.M. American Chemical Paint Company

†Reg. T.M. Aluminum Company of America

#### AMERICAN CHEMICAL PAINT COMPANY

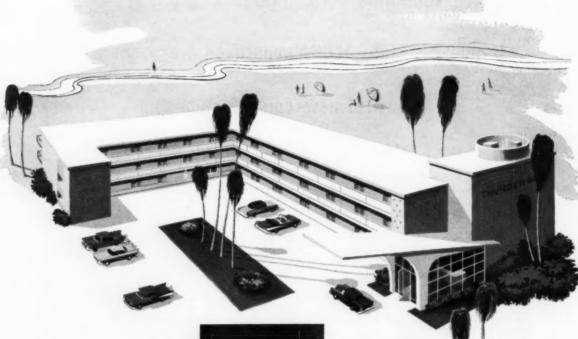
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#### ANOTHER PRESTRESSED CONCRETE STRUCTURE



Alfred
Kemmerer gives
his reasons
for using
prestressed
concrete in
this motel

Consult Roobling...First in U.S. with prestressing and tensioning elements



Architect—A. G. Kemmerer

Contractor—Don Avery

Prestressed units were fabricated and erected by

Perma-Stress, Inc., Holly Hill, Florida.

Mr. Kemmerer is an architect in Daytona Beach, Florida, and is the designer of the Thunderbird Motel in the same city. This structure is believed to be the largest motel in the world using precast, prestressed concrete slabs for the roof and floor system; 100 units with an approximate floor area of 25,000 sq. ft. and a roof area of 17,000 sq. ft.

Getting back to Mr. Kemmerer and his reasons, he says:

"I have found prestressed concrete to be the most practical, inexpensive structural material for use in a fireresistant building." He continues, "It enabled us to complete construction of this project thirty days ahead of its scheduled completion date and its own composition makes it exceptionally durable in the face of the strong, corrosive salt winds from the ocean." In closing, Mr. Kemmerer says, "The maintenance of exposed prestressed concrete is negligible in comparison with similar products in its field."

The only liberty we have taken with

Mr. Kemmerer's statement is to italicize those segments that might appeal to you. For, by itself, each is significant enough to warrant your attention. Collectively, they are some of the reasons why this remarkable construction method is growing in design acceptance the country over in virtually every kind of structure.

Should any of Mr. Kemmerer's reasons excite your interest (or if you're desirous of knowing more about precast, prestressed concrete per se), you have only to write to Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey, for any or all details. And we have plenty of information.

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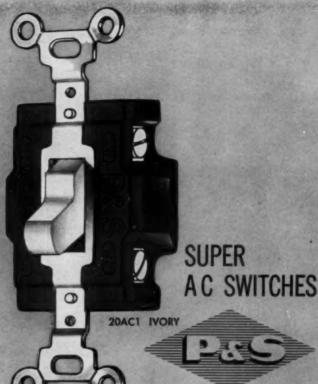
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Shown above are pictures taken at the Beckley Memorial Hospital, one of 10 recently constructed by Miners Memorial Hospital Association under United Mine Workers of America Welfare and Retirement Fund Auspices.

### **Project Locations**

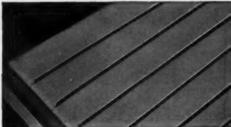
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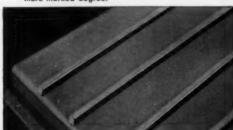
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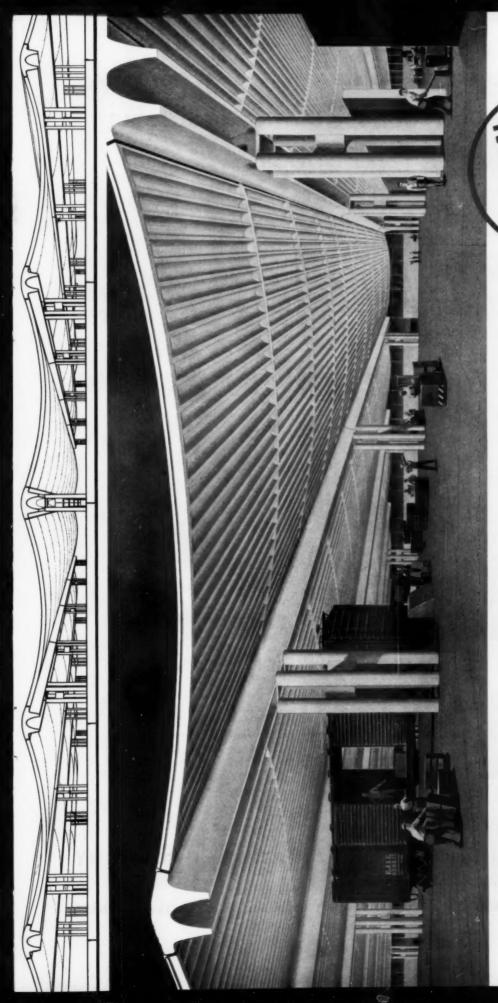
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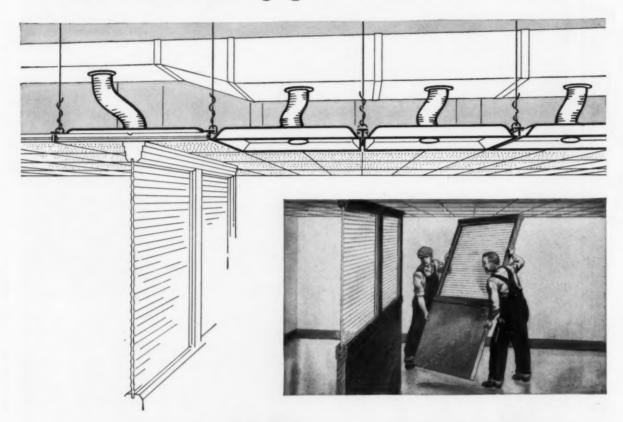
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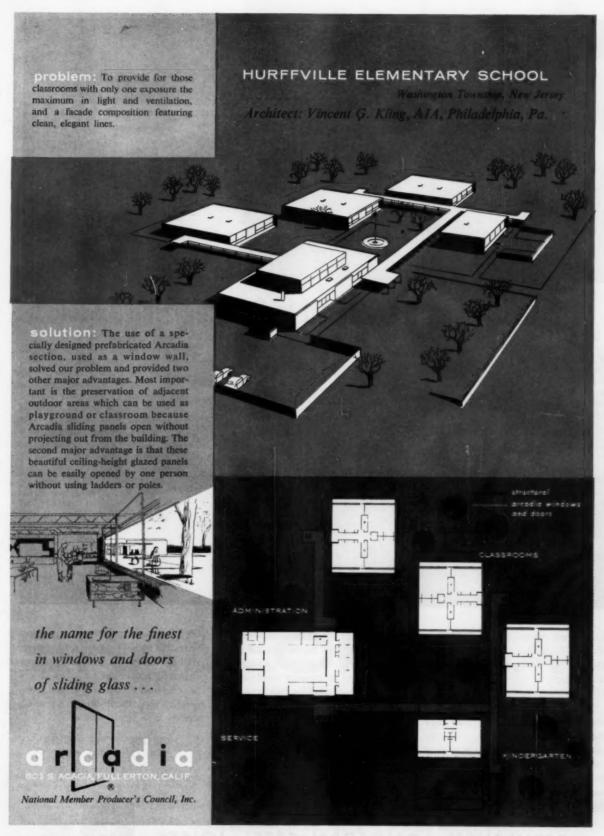
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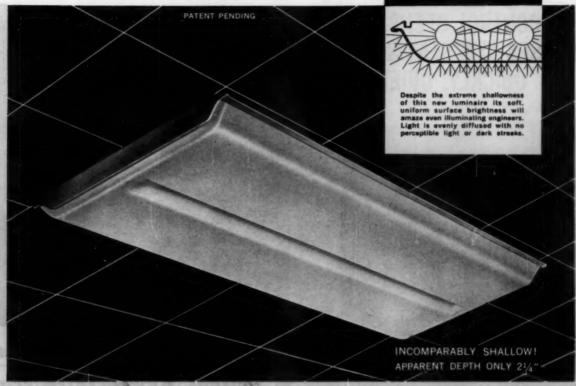
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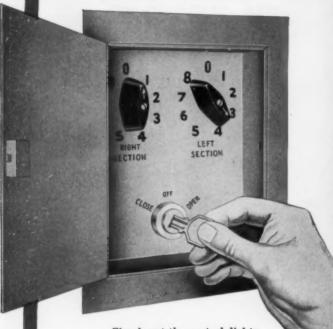
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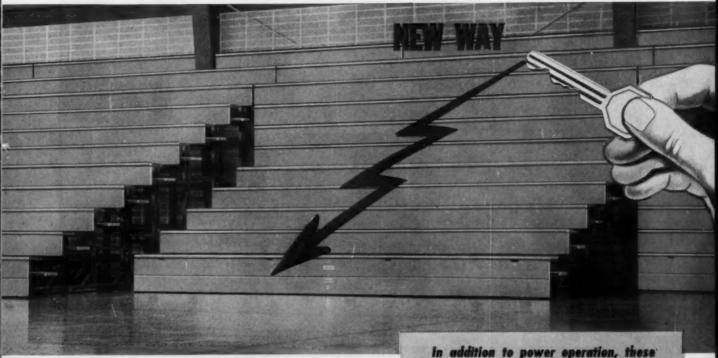
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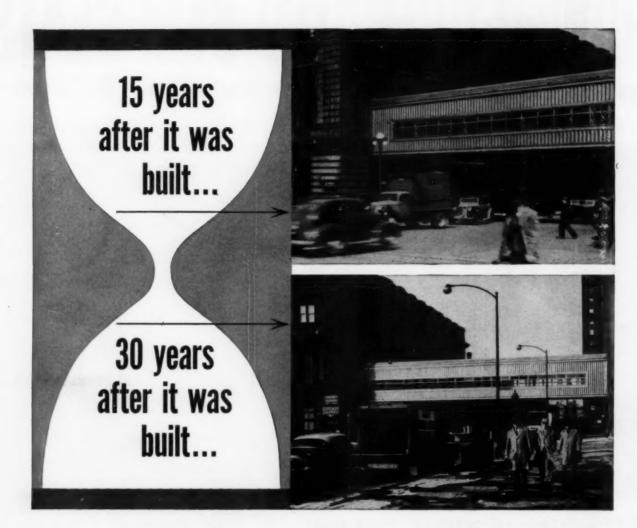
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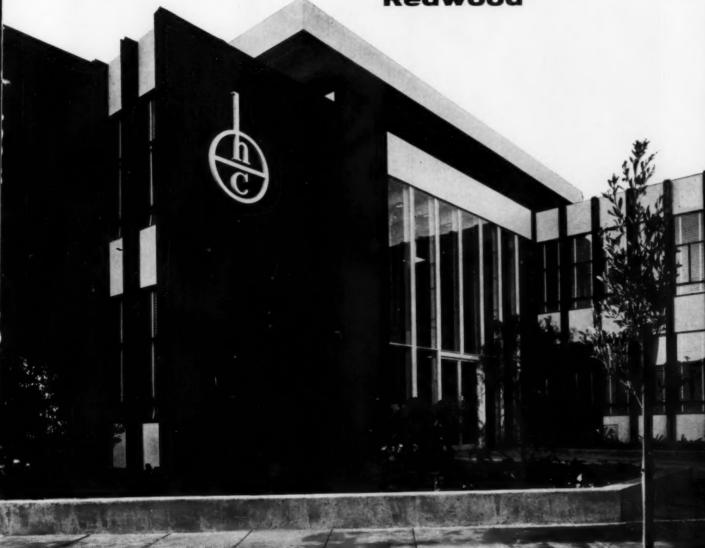
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# Insure efficiency in office space, present and future

### Johns-Manville Asbestos Movable Walls can be quickly changed at will

For an efficient and economical way to save space and make space, J-M Asbestos Movable Walls are the most flexible of movable partitions. They can be erected, dismantled and relocated time and time again. Yet they retain all the elements of performance, durability and attractive architectural design.

J-M Movable Walls make possible the allocation and division of space to meet the ever-changing needs of business. They help provide for better working conditions, increase the comfort and improve the morale of employees.

They are prefinished in stippled, textured colors of light green, light tan and light gray, with other solid colors available on order. Their finish is scratch- and stain-resistant. Layout changes can often be made in a few days or during a weekend.

For free brochure "Asbestos Movable Walls," write: Johns-Manville, Box 158, New York 17, N. Y. In Canada, write 565 Lakeshore Road East, Port Credit, Ontario.



Johns-Manville flush or glazed partitions are furnished and erected by J-M's own Construction Department. You get undivided responsibility for a complete job.



Johns-Manville congratulates the American Institute of Architects on its 100th Anniversary.

-Consult an architect—use quality materials



Johns-Manville

# Right Combination FOR SALE AFTER SALE!



### PRODUCED IN 41 DECORATOR COLORS PLUS SPARKLING BLACK AND WHITE

Here is the most wanted, therefore most *profitable* bathroom fixture combination you can offer. The industry's first Concave Lavatory\* plus the famous Case Non-Overflow One-piece\*\* Water Closet with the whispering flush.

The Case Wellington\*\*\* 300 Lavatory is the most wanted because it's the first really comfortable lavatory ever made for men and women. Gracefully curved for comfort and unusual beauty. Extraspacious, wide, flat deck. Shown with art-designed wrought iron legs and towel bars all in one piece.

Legs supplied in decorator colors and sparkling black and gold. You already know the Case One-Piece Water Closet and its customerwinning features like non-



overflow bowl; safeguarding anti-syphon ballcock; pressurized cleansing rim flush; large water area; healthful seat height; time tested, with streamlined design in 41 colors and black and white. Ask your Case wholesaler or distributor or write:

\*Available with Wrought Iron or Chrome Legs

\*\*Patented

\*\*\*Patent Pending

### CASE MANUFACTURING CORPORATION

33 MAIN STREET, BUFFALO 3, NEW YORK

# Asbestone Panels and insulation to curtain walls, and privacy to office space

With Gold Bond ASBESTONE PANELS, you can plan for the strength and permanency of stone in both exterior curtain walls and movable office partitions. These versatile, easy-to-handle panels help make planning simpler, help make construction more economical.

ASBESTONE PANELS are made of Asbestos-Cement sheets, laminated to both sides of a structural insulation core that's asphalt-inpregnated and chemically-treated to resist weather, moisture, mildew and rot. Fire-resistant ASBESTONE PANELS are four feet wide — available in 6′, 7′, 8′, 9′, 10′ and 12′ lengths...in four thicknesses. A size or thickness for every building recommendation.







CURTAIN WALLS of Gold Bond ASBESTONE PANELS save your clients' money in initial costs and in maintenance. They resist corrosive and acidic fumes, are fire and rot-resistant EXTRA STRENGTH AND INSULATION. Gold Bond ASBESTONE PANELS add extra strength and insulation when used with other curtain wall materials such as Gold Bond Corrugated "400."

MOVABLE OFFICE WALLS—to give client personnel the privacy they need and keep office layouts flexible. Far less expensive than permanent partitions—and they help reduce office noise.

The surface of a Gold Bond ASBESTONE PANEL has the strength of rock. The core is Gold Bond® Insulation Board, made by an exclusive Fiberlok process that locks strength in, keeps heat transfer to a minimum.

Our new manual contains complete information for architects' reference in planning panelized curtain walls for factories, schools, hospitals... inside or outside use. For your copy, write Dept. AR-117, National Gypsum Company, Buffalo 2, New York.



ASBESTONE PANELS

NATIONAL GYPSUM COMPANY



# AMERICAN MODERN at its best in architecture...in door closers

A continuing series of outstanding office buildings, churches, schools, hospitals and industrial structures using NORTON DOOR CLOSERS



Offices of Champlin Oil & Refining Co.... Fort Worth, Texas

Serving as headquarters for a chain of operations that extends from the Gulf of Mexico to the Canadian Border, the structure above is considered to be one of the most modern buildings in the Southwest. Genuinely modern it is, too, not only in appearance but in every detail right down to the door closers...a Norton Inador Closer on every interior door.

The compact, powerful INADOR mechanism is fully concealed in a mortise in the top rail of each door so there is no conflict with the archi-

tect's design. Their mechanism, moreover, is of the rack and pinion structure designed and built to provide the same rugged dependability that has kept so many Norton Door Closers in continuous, trouble-free service for periods up to 30 years and more.

For complete information about these and other Norton models, consult the current NORTON catalog. Write for a copy today if you don't already have one.



A complete line of Norton Surface-type Closers is available for installations where concealment is not essential.



NORTON DOOR CLOSERS

Dept. AR-117 . Berrien Springs, Michigan



JULIUS GARFINCKEL & CO., famed fashion institution in the Nation's Capital, occupies the large Colonial style store at the right end of the Main Building.



S & W RESTAURANT, one of its 12 fine eating places in the South, helps draw people to the center with its excellent food and attractive decor.



MAYER & COMPANY, outstanding furniture store occupies a prominent place in the 7-Corners Shopping Center and it offers a complete decoration service.

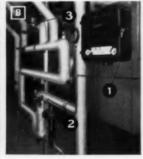


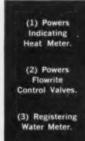


Below: POWERS BTU Metering Control for Each Store. Photo A shows instrument panel with Powers circulating pump control for high temperature forced hot water heating. Powers control automatically starts

and stops the pumps as the load changes. Photos B & C show Powers control employed for BTU heat meter service. B for small stores and C for larger stores.







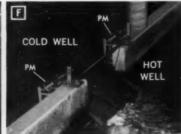


Below: Cooling Tower under Food Lane Supermarket: Photo D shows air intake, portion of retention basin and bank of fans; E shows water sprays; F shows one of two by-pass gates thermostatically con-

trolled by four 6" POWERSTROKE pneumatically operated motors PM; G shows circulating pumps supplying condenser cooling water to air conditioning units throughout the Shopping Center.









# POWERS helps make sales

AIR CONDITIONING CONTROL

...in leading shopping centers and stores



WOODWARD & LOTHROP, one of Washington's large department stores, is at left end of main building. Its Branch store here includes an auditorium for community events.



### Unique Heating and Cooling Features at 7-Corners

Ingenious technical and design features make 7-Corners Shopping Center outstanding for efficient, economical operation and low cost maintenance. For example . . .

- a) High temperature forced hot water at 250°F is accurately metered for each store, see photos opposite page.
- b) Condenser water for entire shopping center is processed in a 3000 ton Cooling Tower built under the Food Lane Super Market. This space also serves as a Retention Basin for storm water and permits use of rain water for condenser cooling for all refrigeration.
- c) Conventional Powers Control system regulates central fan systems and refrigeration compressors.
- d) Snow-melting for ramps, at both ends of delivery truck tunnel to tenant loading docks and domestic water heaters, also are Powers Controlled.

Solving the many temperature, humidity and pressure control problems here exemplifies the engineering skill available at Powers and the versatility of Powers control to handle a wide range of requirements.

For Your New Building, be it a school, factory, hospital, church or commercial building-ask your architect to include a Powers Quality System of Temperature and Humidity control. Its unmatched dependable operation pays a big return on the control investment.

### At 7-CORNERS SHOPPING CENTER,

customer comfort and convenience are paramount. Shoppers in each of its 45 stores enjoy air conditioned comfort controlled by POWERS

Owners: Garfield I. Kass and Irving D. Berger Designed and constructed under the direction of J. Franklin Groff, Kass Realty Co., Inc., Washington, D. C. nsulting Engineers: Kluckhuhn, Cobb and McDavid Mechanical Contractor: R. M. Thornton, Inc., Carrier Corp. Equipment and Air Conditioning Units:

### OTHER PROMINENT USERS OF POWERS CONTROL

Northland Shopping Center near St. Louis Old Orchard Shopping Center near Chicago **Gulfgate Shopping Center** near Houston Famous-Barr Stores, St. Louis, Mo.
Gimbels, in Cheltenham, Philadelphia and Upper Darby, Pa. Macy's, Roosevelt Field Shopping Center and Kansas City, Mo. 1. Magnin and Company, Los Angeles, Cal. Nieman - Marcus Co., Dallas, Texas Rich's, Atlanta, Georgia Sakowitz Bros., Houston, Texas Saks Fifth Avenue, New York - White Plains Sears, "Worlds largest store", many large stores in U.S.A. and Latin America John Wanamaker Stores in Wynnewood, Pa., Baederwood, Pa., Wilmington, Del. CANADA: T. Eaton Co., Ltd., 6 Stores . Robert Simpson Co., Ltd., and Simpson-Sears, Ltd., 12 Stores . Dupuis Freres, Montreal



(c52)

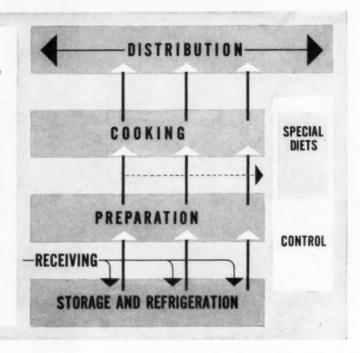
### THE POWERS REGULATOR COMPANY

SKOKIE, ILLINOIS Offices in chief cities in U.S.A., Canada and Mexico 65 Years of Temperature and Humidity Control

# STRAIGHT-LINE EFFICIENCY in FOOD PREPARATION

### STRAIGHT-LINE WORK FLOW

Materials are delivered along a wide corridor to the bank of storage areas and walk-in refrigerators. To facilitate inspection and control, dieticians' offices open at end of this corridor, and adjoin the special-diet alcove. From storage, food moves straight to the line of preparation areas, then straight to the bank of cooking facilities, then to the line of counters where it is assembled in Blickman bulk food conveyors for final distribution.





End of Production line, where food is picked up for delivery throughout the hospital. Beyond is the bank of cooking facilities-ranges and roast ovens at left, kettles at right.

Administrator: Dr. Howard W. Baker; Architects: James A. Nolen, Jr., Philadelphia, and Skidmore, Owings & Merrill; General Contractor: John McShain, Inc., Philadelphia.

When the new building at Temple University Medical Center in Philadelphia was first planned, Blickman worked with the architects and dietary director to develop a "straight-line" kitchen layout featuring wide corridors, plentiful work surfaces, easy sanitation, full integration of facilities. The new kitchen prepares food for distribution in Blickman bulk food conveyors, to decentralized floor pantries in old and new buildings-and to the new staff cafeteria and public coffee shop, both Blickman-Built.

This is another recent example of Blickman design, fabrication, and installation of advanced systems for hospital food service. For further information, write: S. Blickman, Inc., 7011 Gregory Avenue, Weehawken, N. J.

BLICKMAN FOOD SERVICE SYSTEMS

Look For This Symbol of Quality Blickmon-Built





Weldwood red oak Paneling, Midland School, Rye, New York. Architects: Emilio di Rienzo and Warren S. Holmes Company.

# How beautiful Weldwood Paneling helps you save money for schools

Pleasant, practical surroundings in our schools are important. But then, so is that School Tax rate. That's what's so nice about Weldwood Paneling—it makes even a school a warm, cheerful place, yet saves taxpayers' money.

For Weldwood Paneling needs no painting, no

papering, no periodic redecorating...and it costs less to install than you may think. There are countless ways Weldwood products can help you combine functional design with beauty, durability, and long-range economy. Your School Board clients would like to know about these advantages.

Free Weldwood School Planning Booklet. "Weldwood For School Construction and Remodeling." Write for your copy. We shall be glad to have a Weldwood Architects' Service Representative consult with you – no obligation. United States Plywood Corporation, Dept. AR11-57, 55 W. 44th St., New York 36, N. Y.



Weldwood Chalkboard doubles as a magnet-holding bulletin board. Versatile, shatterproof, it never needs resurfacing, permits glare-free reading from any part of the room . . . and it's guaranteed for life. Chalkboard colors: gray (2 shades), green (2 shades), and Projection White.



### 

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UNITED STATES PLYWOOD CORPORATION
Offices in 106 principal cities in the United States and Canada

Weldwood built-ins provide a friendly atmosphere. Yet they often save enough on space alone to pay for the entire installation! Shown: Weldwood natural birch for sliding doors, clothes racks and benches, New Preston School, New Preston, Conn. Architects: Nichols and Butterfield.



# Insure Better Construction



### with LACLEDE open web steel joists

Engineering design and performance characteristics, necessary to insure dependable load bearing ability, are inherent in every Laclede open web Steel Joist because they're manufactured under the rigid Quality Verification Program of the Steel Joist Institute.



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STEEL JOIST INSTITUTE SJI APPROVAL is your assur-

ance of uniformly high quality . . . in every Laclede Joist you install ... a real contributing factor to the over-all success of your construction work.

Write for your copies of the latest Steel Joist Institute literature-"Bridging Report" and Quality Verification Program.



COMPANY

SAINT LOUIS, MISSOURI

Producers of Steel for Industry and Construction



# MERCHANDISING APPEAL-EXEMPLIFIED BY



Lighting that often increases retail departmental sales as much as 300% is provided by Mainliner Luminaires, and featured throughout all departments of the great new Montgomery Ward store located at Portsmouth, Ohio.

# New "must" for Store Lighting-

MAINLINER Q

LUMINAIRES

### Mainliner Exceptional Variety—Fine Detail of Design— Lowest Installation and Maintenance Costs Fulfill Today's Most Advanced Store-Lighting Requirements!



See how easily various models from the wide variety of Mainliner Luminaires are applied for both functional and decorative lighting, as well as for "Merchandising" lighting. More and more—retailers are now demanding that their store lighting shall give them every possible merchandising advantage!

Most leading retailers now know that proper store-illumination can attract as much as 2½ times more traffic!—can increase the sale of displayed items 30% to 50%—can improve impulse-buying fully 5% overall! That store lighting alone can speed all selling-operations 20%—and eliminate returned-goods transactions 90%!

These facts are frequently cited in accounting for the spectacular "swing" to Mainliner Luminaires, for modern store lighting or re-lighting—along with the three major reasons for "specifying Mainliners"!

Moinliner Widest Variety! 4 mounting types, 6 basic sizes and 13 shielding styles fulfill any large-area lighting requirement!—permit more than 1000 all different combinations! Modular proportions and dimensionally correct construction, of Mainliner Luminaires, "mate" with any type of "squared" ceiling material!

Highest Quality Appearance! Mainliner door-frames have mitered corners, Latches are flush, almost indiscernible. The extremely "shallow" design of Mainliner units gives a "patterned" rather than a "boxy" appearance, when they are surface-mounted. And, a black stripe applied to the light-trap seat—eliminates the escape of light from around the door-frames of Mainliner Luminaires!

Sove Installation Costs 3 Wayst Rugged and reinforced Mainliner construction eliminates "crimping" and "woobling"—for much easier handling! Mainliners come completely pre-assembled! Doors are packed separately. Cartons simply "rip" open. Mainliners cut all job-planning—job-layout—and luminaire-handling time!

Mainliners are only 4\%" deep! Easiest ever to position and mount! Recessed models include Flange-type, Grid-type and Snap-in Tee-Bar units. Surface-mounted units permit a semi-recessed appearance.

Mainliner doors, too, come pre-assembled—hinge and latch from either side.

And, the complete pre-wiring of Mainliner Luminaires is consistently reported to cut wiring-time in half!

J-04434

Get all three superior advantages of Mainliner Luminaires—through your nearby Westinghouse Representative—through your own, local Westinghouse Distributor or write directly to Westinghouse Electric Corporation, Lighting Division, Cleveland, O.

> Request a Mainliner presentation today!



Westinghouse





Reception room on the Executive Floor of the new Procter & Gamble building in Cincinnati, Ohio Architects & Engineers - Voorhees, Walker, Smith and Smith, New York City

### Carpet-for better sound control, lower maintenance costs

Recent studies at a nationally-known acoustics laboratory prove that carpet is a highly effective sound control agent.

Carpet has a sound absorption coefficient equal to many materials used exclusively for sound control and it virtually eliminates floor impact noises.

Combined with the 50% reduction in maintenance costs that carpet achieves in heavy traffic areas, its two-fold importance to your clients becomes apparent.

And, of course, your clients benefit from the increased safety and prestige carpet brings to an office—not to mention the effect of its beauty and comfort

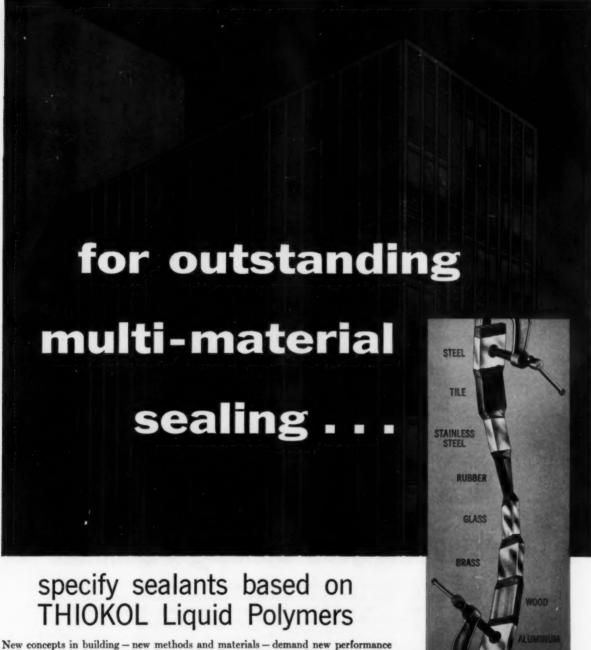
on employee morale and efficiency.

Send today for your file copy of "Sound Conditioning With Carpet", the complete study of carpet's ability to control airborne and impact noises. You'll discover that, in addition to the beauty, dignity, safe footing and maintenance economy carpet gives to your clients, it is the only dual-purpose sound control you can specify.

If you don't already have your copy of "Cutting Costs With Carpet", a comparative study of the maintenance costs of carpeted and non-carpeted floors, ask for that, too. Write Dept. A-4, Carpet Institute, Inc., 350 Fifth Avenue, New York 1, N. Y.

Specify carpet designed and made for the American way of life by these American manufacturers: Articom Beattle • Bigelow • Cabin Crafts-Needletuft • Downs • Firth • Gullstan • Hardwick & Magee • Hightstown • Holmes Karastan • Lees • Magee • Masland • Mohawk • Philadelphia Carpet • Roxbury • Sanford • Alexander Smith

CARPET INSTITUTE, INC., 350 Fifth Avenue, New York 1, N. Y.



New concepts in building — new methods and materials — demand new performance standards for sealants. Conventional caulking compounds no longer meet the exacting requirements of modern design.

Sealants based on Thiokol Liquid Polymers, however, are ideally suited to today's construction methods. They adhere tenaciously to a multitude of materials, including steel, plastic, glass, stone and wood. And they maintain their adhesion despite the most severe vibration, expansion and contraction.

What's more, the weathering problem is virtually eliminated when you specify sealants based on Thiokol Liquid Polymers. For these hardy compounds resist major causes of deterioration, including sunlight, ozone, oxygen, water and smog.

For your next modern project be sure to specify a modern sealant—an adaptable, durable sealant based on THIOKOL Liquid Polymers. For more information, see Sweet's 1957 Catalog or write: Thiokol Chemical Corporation, 780 North Clinton Ave., Trenton 7, N. J. In Canada: Naugatuck Chemicals Division, Dominion Rubber Co., Elmira, Ontario.

Here's a dramatic demonstration of multimaterial adhesion. Despite the varying surface qualities of the materials, the sealant adheres tightly to all of them even when placed under exaggerated conditions of stress.



PIONEER MANUFACTURER OF SYNTHETIC RUBBER

® Registered Trademark of the Thiokol Chemical Corp. for its liquid polymers, rocket propellants, plasticizers and other chemical products.



# Checking the Web Bending Machines

To make a high quality open web steel joist, the right equipment is an absolute "must". Round bar stock must be converted into symmetrical, uniform webs to form the "backbone" of the finished joist. Here, an inspector from an independent testing laboratory verifies the continuous accurate performance of a web bending machine in an SJI member company plant.

Inspection of equipment in member company plants is only a part of the Steel Joist Institute's comprehensive Quality Verification Program, which also includes 16 separate tests and measurements of joists and their components to determine whether they qualify for the Institute's approval.

### STEEL JOIST INSTITUTE

DuPont Circle Building

WASHINGTON 6. D. C.

Steel joists of the designations adopted by the Steel Joist Institute and manufactured by the following companies have been investigated and approved by the Steel Joist Institute:

AMERICAN BRIDGE DIVISION
United States Steel Corporation
BETHLEHEM STEEL COMPANY
BUILDERS STRUCTURAL STEEL CORP,
CECO STEEL PRODUCTS CORP,
COLORADO BUILDERS SUPPLY CO.
CONCRETE STEEL COMPANY
JOHN HANCOCK, JR., INCORPORATED

LACLEDE STEEL COMPANY
MACOMBER INCORPORATED
SHEFFIELD DIVISION
Armco Steel Corporation
SOUTHWEST STEEL PRODUCTS
TRUSCON STEEL DIVISION
Republic Steel Corporation
VIRGINIA STEEL COMPANY

### Means Better Construction Here...



## That Put "Muscle" in These Weight-Saving Joists

Thanks to such specialized equipment as these web bending machines, Steel Joist Institute member company plants are able to produce joists that combine unusually high strength with the light weight of these unique structural members.

Architects, contractors, and others concerned with construction have found many other advantages in open web steel joists, too. For instance, they provide a convenient passage for pipe and conduit; they're standard in dimension and carrying capacity; they're permanent, fire resistant and vermin proof.



FREE Write for technical bulletins

See our insert
in Sweet's
Architectural File

STEEL JOIST INSTITUTE DuPont Circle Building Washington 6, D. C.

Please send technical bulletin(s) checked below:

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Built to Last. Aerial view of Veterans Administration Neuropsychiatric Hospital near Pittsburgh, Pa. All sixteen buildings have Monel nickel-copper alloy flashings and drainage

systems. Architects-Engineers: Prack & Prack, Alfred Hopkins & Associates, Bowers & Barbalat. Hospital Contractor: James McHugh Sons, Inc. Sheet Metal Work: Miller & Meyer.

# Why the big trend to light-gauge Monel for so many of today's new buildings?

More and more architects are writing three little words into their specifications these days.

The words are "Monel Roofing Sheet." And it's easy to explain why.

Monel\* nickel-copper alloy is strong and tough. Stronger and tougher, in fact, than any other non-ferrous roofing metal. It is highly resistant to atmospheric corrosion.

Monel alloy also resists wear and abrasion. Has an average coefficient of expansion, so is less likely to crack under extreme temperature changes.

Because of this combination of properties, you can often specify lighter gauges than are commonly used. And with lighter gauges, of course, the cost of roofing metal per square foot drops measurably!

Another feature — Monel alloy presents no fabrication or installation problems to the experienced roofer. The same tools and techniques employed with other roofing metals work fine with Monel alloy!

So write Monel into every job. For schools...hotels...factories...office buildings...hospitals and all other institutions. And don't hesitate to ask for help or advice on a specific job. The Monel Roofing Sheet Distributor in your city is listed under "Nickel" in the "Yellow Pages" of your telephone directory. Call him. Or write to us.

\*Registered trademar

The International Nickel Company, Inc. 67 Wall Street New York 5, N. Y.



No Problems. Good workmanship is as easy to achieve in corrosion-resisting Monel alloy as it is in any other roofing metal. Neither fabrication nor installation of Monel sheet metal roofing requires special tools or techniques.

# MONEL ROOFING FOR THE LIFE OF THE BUILDING



### Precast Floors and Roof on Precast Frame

The new Seahorse Hotel in Galveston, Texas is unusual because it is all precast concrete. The frame is formed of 51 concrete bents cast on the site and erected as shown in the photo below, left,

The second floor and roof are 6" x 16" precast Flexicore units, which clear span an average of 13 feet between bents. The Flexicore slabs were left exposed for guest room and sun deck ceilings, and were cantilevered to provide covered walkways. Flexicore units are hollow-cast concrete slabs that can be designed for clear spans up to 26 feet for floors and 30 feet for roofs.

The Seahorse Hotel is owned by the Beach Corporation of Galveston. Thomas M. Price was the architect and R. L. Reid the structural engineer.

A six-page descriptive folder on this project showing plans, sections, and details is available to architects, engineers and contractors. Write or phone any of the manufacturers below or The Flexicore Co., Inc., Dayton, Ohio. Ask for Flexicore Facts No. 77.







Left: Erection of precast bent. Center: Flexicore slabs used for second floor and roof. Right: Flexicore exposed for guest room ceiling.

ALABAMA, Birmingham 1
The Alabama Cement Tile Co.
COLORADO, Denver 1, PO 366
Flexicore Company of Colorado
FLORIDA, Tampa, PO 2189
Universal Concrete Pipe Div.
ILLINOIS, Chicago, Franklin Pk.
Mid-West Flexicore
INDIANA, E. Chicago, PO 537
Calumet Flexicore Corporation
MICHIGAN, Livonia, PO 2006
Price Brothers Campany
MINNESOTA, St. Paul E-4
Molin Concrete Products Co.
MISSOURI, E. St. Louis, Ill.
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# flexicore

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OHIO, Dayton 1, PO 825 Price Brothers Company PENNSYLVANIA, Monongahela Pittsburgh Flexicore Company RHODE ISLAND, Saylesville Durastone Flexicore Corporation TEXAS, Houston, 4511 Kyle St. Flexicore of Texas, Inc.
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CANADA—Montreal, Quebec
Creaghan & Archibaid Ltd.
CANADA, Woodstock, Ontario Schell Industries Ltd.
CANADA, Supercrete Ltd.
St. Boniface, Man.; Regina, Sask.
PUERTO RICO, Hato Rey
Flexicore Co. of Puerto Rico.

# You'll find American Blower Air



Beck Building, Shreveport, La.

...because American Blower offers a complete line of air-conditioning products designed, engineered, and manufactured to work TOGETHER



Port Authority Bus Terminal, New York, N. Y.



Sheraton Hotel, Philadelphia, Pa.



Great Plains Life Insurance Building, Lubbock, Tex.



Mile High Center, Denver, Colo.



Sunray Building, Tulsa, Okla.

# Conditioning wherever you go



Mondawmin Shopping Center, Baltimore, Md.



Evening and Sunday Bulletin Building, Philadelphia, Pa.



Standard Brands Building, New York, N. Y.



Federal Office Building, New Orleans, La.

Whether it's a large-scale central or zone system—or a system for a smaller store, showroom, or industrial plant — American Blower has the right air-conditioning and refrigerating equipment for your business. Buying from a single source gives you a balanced system, pinpoints responsibility for

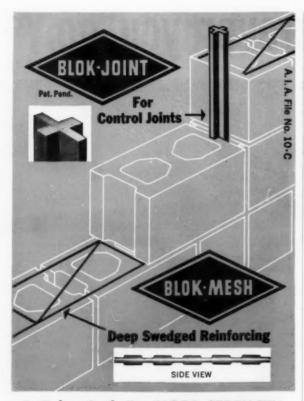
quality and performance, saves you time and money. So, if air conditioning is in *your* plans, get in touch with our nearest branch for product information. Or write: American Blower Division of American-Standard, Detroit 32, Michigan. In Canada: Canadian Sirocco products, Windsor, Ontario.

### AMERICAN BLOWER

Division of American-Standard



QUALITY PROTECTS YOUR INVESTMENT ... AMERICAN-Standard QUALITY IS AVAILABLE AT NO EXTRA COST



## It Takes Both For MORE STRENGTH & PROTECTION IN MASONRY WALLS

Blok-Joint is a cross-shaped rubber extrusion used to make control joints in masonry walls. No special blocks are required — no building paper and mortar fill is necessary. No cutting or sawing to be done. Blok-Joint is used with any standard metal window sash block.

The secure interlock provided by Blok-Joint adds to the lateral stability of the wall. It allows for contraction and expansion while maintaining a firm joint.

Blok-Joint is effective in single block walls, with brick and block backup and at pilasters and columns.

The big advantage you get with Blok-Mesh is the exclusive "Deep-Grip" swedging. It allows the mortar to get a real bite on the reinforcing yet requires no more area in joint than other types of superficial deforming.

Blok-Mesh is designed to eliminate cracks above lintels and below sills. It minimizes ordinary shrinkage cracks. Notice in the illustration how the "Deep-Grip" swedging of Blok-Mesh is large, deep and well-defined to form effective dovetailing.

### Write for FREE Blok-Joint sample

and literature on Carter-Waters 2-point better masonry wall design.

For Further Information See



2-c Car Architectural or Industrial Construction File



2440 Pennway, Dept. AR, Kansas City, Mo

Pour clients will like Dodge Cork Tile Floors for their luxurious appearance, their comfort under foot, their exceptional wearing properties and ease of maintenance. You'll like Dodge Cork Tile Flooring, too. Unique, "wood-floor" specialty patterns, custom inserts and special shapes, plus a wide range of finishes, gauges and sizes allow you to get the exact effect you desire.

only dodge

offers you 3 distinct lines

cork floor tile

### 1-Vinyl-Cork Tile

the easy-to-maintain tile that combines the advantages of a resilient cork base with the toughness of a vinyl surface. It's quiet, comfortable to walk on, long wearing, and spot and stain resistant.

### 2-SG Cork Tile

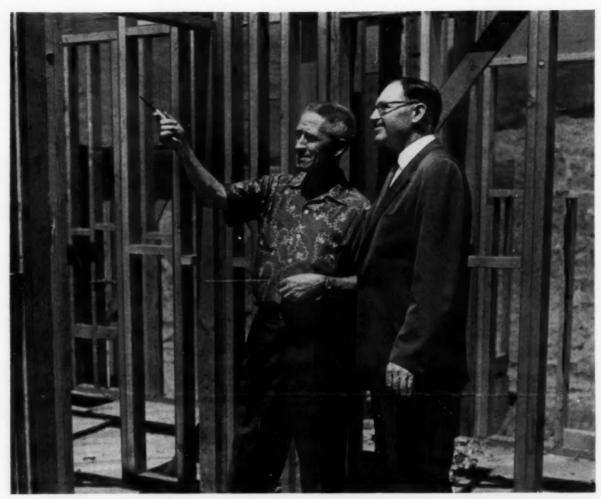
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Mr. Groom (left) discussing concealed wiring installation with Edward A. Smith of The Pacific Telephone & Telegraph Company

# "Concealed telephone wiring is a profitable investment for builders"

- says Glen L. Groom, Builder, of Chabot Park, Oakland, Cal.

"I build houses by the dozens," says Mr. Groom, "as many another builder does. Sometimes I have as many as a hundred going up at once. And in every one I invest in concealed telephone wiring just as I invest in concealed electrical wiring and other built-in facilities that modern home-buyers look for and want.

"Concealed telephone wiring is a profitable investment for me. It's a salable item itself but, more important, it helps me sell my homes because it means added convenience, and preserves the finished beauty of the rooms. In a business where you're constantly trying to second-guess Mrs. Smith and Mrs. Jones, concealed telephone wiring is a helpful sales feature."

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0 71,2	25 72.0	30 72.5	30 72.5	25 72.0	25 72.0	35 71.5	30 71.6	35 71.5	—7'- <b>6</b>
71.5	25 72.3	25 72.0	25 71.9	40 71.9	30 71.9	30 72.0	30 72.2	50 71.9	5′-0
0 72.2	35 71.9	35 72.2	30 72.0	35 72.0	35 72.0	30 72.5	35 72.0	50 71.9	-2-6
0 72.5	60 71.5	45 71.2	45 71.5	30 72.0	45 72.9	50 72.5	40 72.9	50 71.9	_ 4

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an architectural feature
of Albuquerque
Civic Auditorium



Albuquerque Civic Auditorium, Albuquerque, N. M Ferguson, Stevens and Associates, architects. Lembke, Clough and King, Inc., contractors Photos by Herbert W. Crittenden.

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Response to the constantly shifting loads is provided by a high velocity, double-duct system equipped with a mixing unit for each gaming table or area. Mixing units are installed above the ceiling and discharge through aspirating-type ceiling diffusers.

The key to the successful operation of this highly flexible system is its regulation by means of a Johnson Pneumatic Control System. For high accuracy control, Johnson Comfostats are pendantmounted beneath the diffusers and directly above each table, which is the point of greatest load concentration and maximum aspirating effect. This assures instant response to load changes, with accurate proportions of cool and warm air available for each table.

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With Comfostats, customers of Harold's Club enjoy an exceptional degree of comfort. These humidity-compensated thermostats, which are made exclusively by Johnson, reduce the dry bulb temperature by an appropriate amount as the humidity increases, thus compensating for the high latent component of the load that exists wherever a crowd gathers. Each of the 110 diffusers is individually controlled by its own Comfostat, so that the system is actually zoned for each gaming area or table. System flexibility and response of the pneumatic controls provide cooling where and as needed, with a minimum of installed refrigeration capacity.

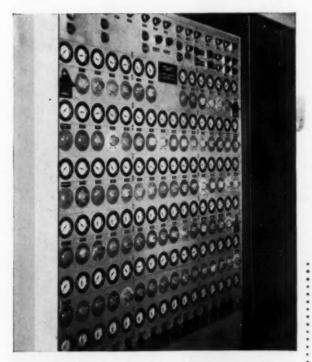
\*Harold's Club, Reno, Navada, Ferris & Erskine, architects, Rena; Clyde E. Bentley, mechanical engineer, San Francisco; Earl O. Stice Co., mechanical contractor, Glendale, California.

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# ARCHITECTURAL RECORD

NOVEMBER 1957

## THE SHAPE OF A HOUSE

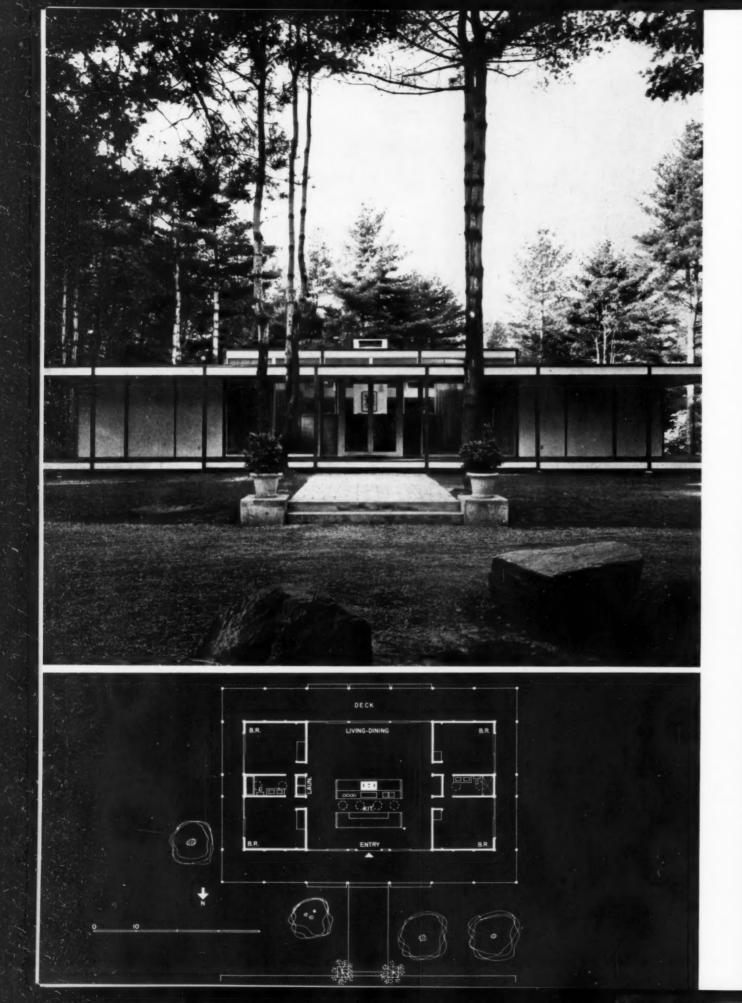
In a time of mixed architectural blessings it may be encouraging to reflect that our visual satisfaction in buildings does not derive solely from their shapes. For if it did, ours would be a near-starvation diet. We are fortunate in the sustaining — and distracting — power of size and color and texture, but a whole architecture must deal positively with all the basic visual characteristics, and of them all shape is the most pervading, the most involved in planning and structural decisions, and the most neglected.

Consider the house. The rank-and-file example today is a curious collection of bumps whose contouring in plan and profile distresses the eye and confuses the mind. The usual L-shaped house is as grotesque as an automobile on its side; badly related to its site, inefficient and uneconomical. It is an eroded rectangle; a remnant shape without hope of wholeness and foredoomed along with the T shapes and Split T's and Single Wings and all the unbalanced variations of a tricky offense against a defenseless public. No assortment of lumps and bumps can make these little houses seem larger or finer. They just get funnier.

To abberations in plan shape add the contorted profiles of the typical Split-level house, an unnatural monstrosity barely justifiable even on a hillside. And for the ultimate in the shapeless and the hopeless regard the rash of miniature Ranch houses (for tiny commuting cowboys). In charity, and in truth, it must be said that the perpetrators of these deformities don't know any better. Nor are they often shown instructive examples. The houses of those who should know better continue to zig and zag and bump and grind across the lawns of suburban America — innocent of rhyme or reason. They widen and narrow as rooms change size (but never find a unifying rhythm): bend to reflect a contour or look at the sun (but make nothing more of the bending); move up and down in seeming response to slope (but level out great adjacent parking areas); detour with reverence around a tree (but then plant ecological strangers). Houses compounded of tentative gestures by haptics who, perceiving fragmentally, design parts without reference to the whole and seem content in achieving the picturesque as a substitute for good design.

Good shapes develop vilality from sources unique to their particular building program, and their unity through studied response to disciplines of universal ordering. Form and function are interdependent, but never in a fixed sequence. All shapes are generalized to a degree. The problem is to reach that degree at which the shape becomes comprehensible as a shape, and satisfying both in abstract and concrete terms. There are few houses in which this is ever achieved. We are offered the one or the other, and perhaps this must always be. But if we cannot be great we can be simple — that quality is never strained.

John Knox Shear



1. New Canaan, Connecticut: John Black Lee, Owner and Architect; Paschall Campbell, Landscape Architect

Axial symmetry characterizes this small Connecticut house: front and rear façades are identical except for the main entrance; all four bedrooms (one designated as a study) are the same size; the two bathrooms mirror each other; and the chimney marks the center of the building.

Rectangular in plan—as is each of the six houses which follow—the children's bedrooms at one end and the master bedroom and study-guest room at the other are separated by a "commons" area which comprises living and dining room, and kitchen and entrance hall. This large central space measures 31 by 31 ft, has two all-glass walls and a perimeter clerestory. Sliding glass doors give every room in the house direct access to the encompassing veranda. The island kitchen shields the living area from the entry and forms a control center for the entire house.

Construction is wood frame on a poured concrete foundation. Exterior walls are ping pong table tops, painted white; flooring is oak except for tile in kitchen and baths. All interior doors are hollow core flush wood.



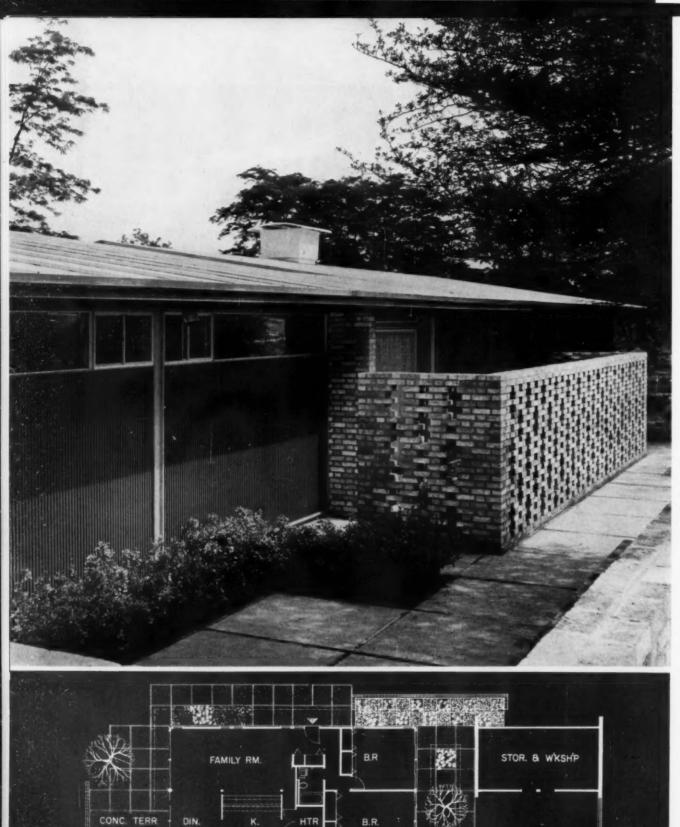


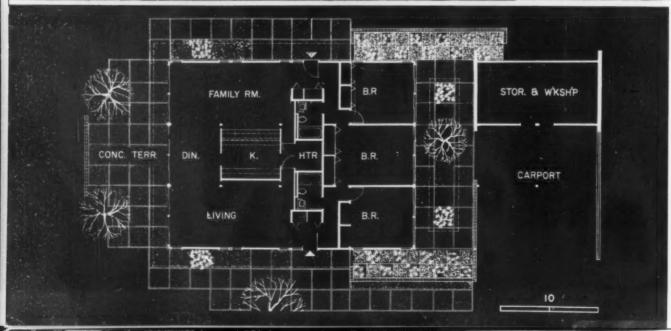




and W. Maliber

Enrichment of rectangle is provided in surrounding veranda whose columns, echoing the verticality of pine trees, contrast pleasantly with horizontal lines of house. Island kilchen serves as space-divider, permits supervision of children and/or entertainment of guests while meals are being prepared





2. Lafayette, Indiana: Alcoa Carefree House; Charles M. Goodman, Architect

This house, like the one shown on the two previous pages, has one large living-dining-kitchen area, with the kitchen serving as a space divider. Here, however, the three bedrooms are all on one side of the house and the bathrooms, heater and kitchen form a central utility core. The large main room opens to terraces on three sides, and all bedrooms open to an enclosed patio.

Not unexpectedly since the house was built by Alcoa, aluminum is one of the principal construction materials. The roof is pebble-textured aluminum of batten seam construction, the exterior walls are 12- by 8-ft aluminum-faced panel sections, vertically ribbed and reportedly requiring no more maintenance than an occasional sprinkling with a hose. Exterior and closet doors are also aluminum as are the ornamental grilles over the glass areas, which swing open

for easy cleaning.

The central fact in the house, however, is not its skillful use of metal but its use of space. Within the confines of a simple shape it offers a rewarding solution to the problem of reconciling rooms needed with area available.

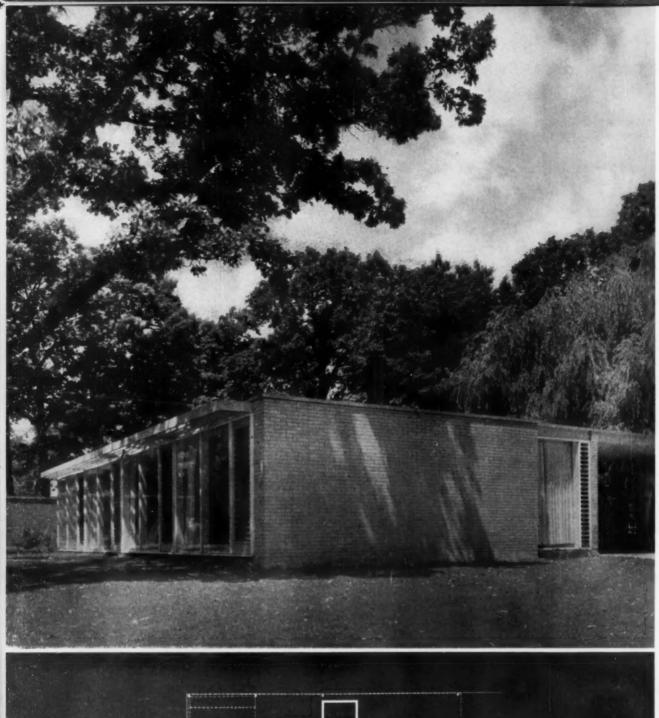


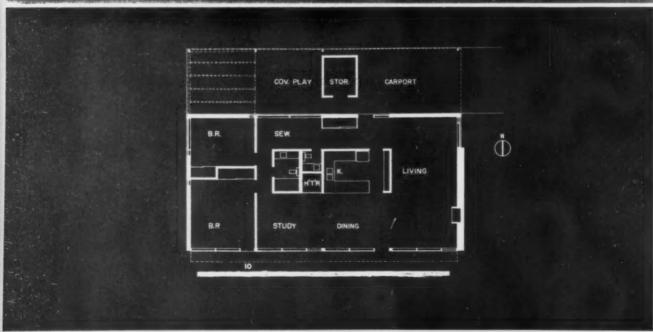






Rectangular plan is varied here by brick-enclosed lerraces at front and rear. Bedrooms open to secluded patio and all living areas have adjoining terraces. Kitchen again is an island doubling as spacedivider and control center





3. Edmond Park, Illinois: Mr. and Mrs. Irving Nuger, Owners; Robert Bruce Tague and Crombie Taylor, Architects

Here is still another version of the versatile rectangular plan. In this case divided longitudinally into four approximately equal parts: one quarter is used for a master bedroom and a smaller bedroom for the young daughter opening to a covered play area; a utility core consisting of bathroom, lavatory, heater and kitchen occupy the center of the next two quarters, with sewing room and entry on one side, study and dining room on the other; the remaining quarter is the living area. Carport, outdoor play area, storage room and terrace are all under the one continuous roof.

Construction is wood frame with brick veneer (required by zoning code). Ceilings are plaster, interior walls are wood, plaster or brick. Heating is hot water radiant with iron pipe in concrete floor slab; floors are finished in cork or asphalt.



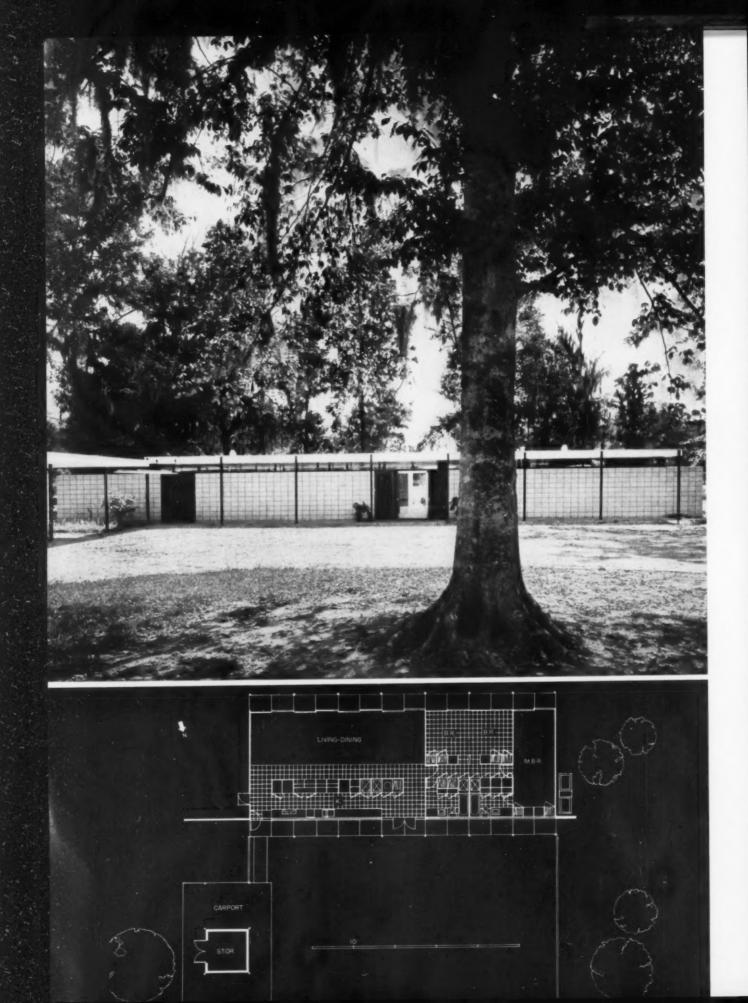




rich-Blesslee photo



South wall is floor-to-ceiling insulated glass with ventilating panels of adjustable wood louvers. Study, at one end of L-shaped living-dining area was planned as possible third bedroom with ready access to central bath. Off-center fireplace in living room in effect creates two separate entertainment areas



4. Baton Rouge, La.: Mr. & Mrs. E. M. Gladrow, Owners; Short & Murrell, Architects; Barry J. Callari, Associate, Structural Designer

The shape of the house here again is the predominant feature of plan and design. Interest is added and symmetry enhanced by the evenly spaced columns, the perfectly centered main entrance, and the adjoining second rectangle consisting of carports and storage room.

The site is a 100- by 200-ft interior lot overlooking a beautiful golf course at the rear. To secure privacy on the street side the entire front wall is stacked limestone masonry units 6 ft 8 in. high with 16-in. fixed glass above. The opposite façade is of sliding glass panels giving every major room a share in the view.

The long lines of the house are emphasized in plan by the unusual treatment of kitchen and storage units: the kitchen is a lengthy corridor, open at both ends, with stove, sink and breakfast bar on one side (the outer wall), cabinets and refrigerator on the other; clothes and storage closets are banked on either side of the bedroom hall. Living room and master bedroom are long and relatively narrow.

Framing is 3-in. square steel columns on 10- by 16-in. centers with 4 by 8 wood beams. Foundation is reinforced concrete slab and footings, roof is built-up and topped by white marble chips. Ceilings are fir plywood, interior doors are flush hollow core.

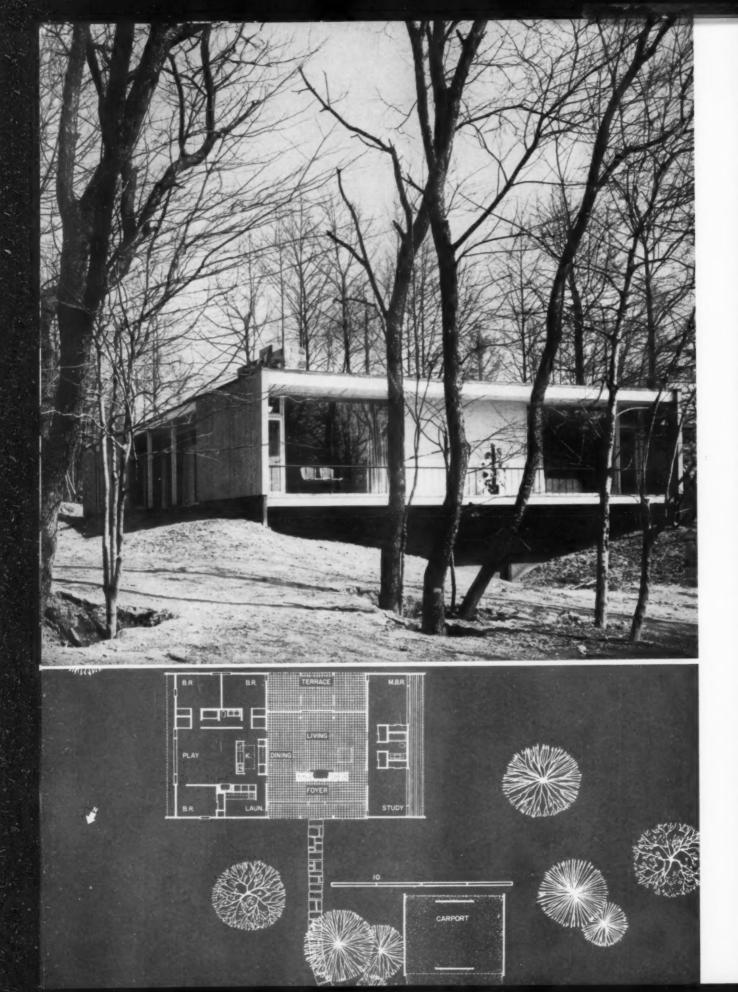








Projected landscaping, not begun when these photos were taken, will add warmth and color to entrance court (opposite) and rear terrace (top of this page). View-end of long master bedroom (second from top at right) is secondary living area for parents when daughters entertain or vice versa



 Great Neck, New York: Mr. & Mrs. Richard Lawrence, Owners; George Nemeny, Architect; J. J. Levison, Landscape Architect

Absolute symmetry has been replaced in this most interesting house by an apparent or partial exterior symmetry which adds flexibility to the interior plan. The house is divided into three main areas: the children's bedrooms are grouped around the kitchenfamily room at one end; the master bedroom and study at the other end; and the living-dining room in the center separated from the foyer by a massive stone fireplace on the north side and opening to a wide terrace on the south side.

Since the house was designed for a family with three young children and only part-time help, the kitchen was planned as a control point for the children's activities. Its interior wall contains built-in equipment and cabinets; facing this is a low island separating it from the glass-walled family room without shutting off the view of the outdoor play area beyond. The parents' suite at the opposite end of the house can be made into a completely private unit connected by an intercommunication system with the children's rooms.

Construction is wood frame on concrete block foundation. Exterior walls are cypress siding, stained; interior walls are cypress and plaster, flooring is quarry tile, plastic tile or carpet; ceilings are plaster.





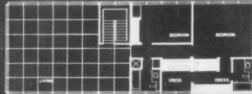




P. S. L.

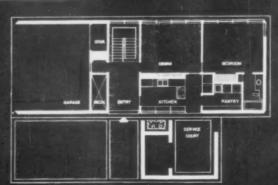
Master bedroom and study, at secluded end of house share a balcony (opposite page and immediate right). Living-dining room area opens to sheltered terrace within rectangular frame of house (top two photos at right). Family room-kitchen has plenty of indoor play space and direct view of play terrace beyond





SECOND FLOOR

10



FIRST FLOOR

6. Port Arthur, Texas: Dr. & Mrs. Harris Hosen, Owners; Bolton & Barnstone, Architects

The height of a two-story house can either accentuate or play down the basic shape of the house. In this case it accentuates it despite a deliberate assymetry in façade and a lower floor which requires a large planting area to complete its rectangle.

The site is bordered on the front by a fashionable residential street and on the rear by a busy ship channel through which from five to ten ocean-going steamers frequently pass within an hour. Such a site strongly suggested a two-story plan with all main rooms on the upper level where the channel view would be more extensive and exciting. Since the owners specified a separate suite for their 19-year-old son, the logical solution was to place his quarters on the lower level with the master bedroom. younger daughter's room and living room on the upper level. Kitchen and dining area were located on the ground floor to eliminate unnecessary delivery and serving problems.

A major feature in the design of the house was the owners' extensive collection of antiques which had to be suitably housed. Another feature was anticipated entertaining on a large and rather formal scale.

Ceiling height was held to 8 ft on the ground floor but increased to 10 ft on the second to emphasize the importance of the main living areas and, in the architects' words, to "counteract the feeling of going upstairs."





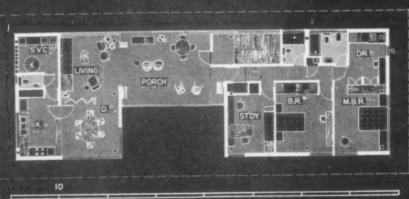




food Winchell

Construction is wood frame on concrete slab with brick exterior facing. Glass area is divided into a rigid module made up of fixed and sliding sections. Brick enclosed service area is covered with horizontal lattice to preclude view of yard from upper floor





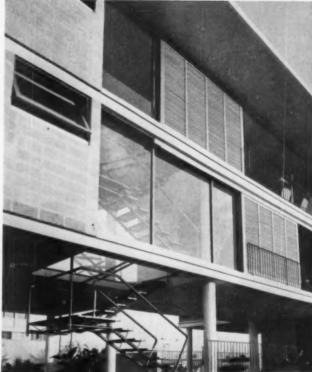
7. Havana, Cuba: Perez Farfante, Owner; Frank Martinez, Architect

This large and handsome Havana house, three stories in height, is faithful to the rectangular shape although at first glance it may not seem to be. It fits its semi-tropical setting well with its balconies, patios, open stairs and wide roof overhangs; a long second look is required to discover the symmetry of its plan.

The house was designed for two sisters, each of whom has her own apartment on a separate floor. The apartments, on the two upper floors, are identical with living and dining rooms and kitchen at one end, three bedrooms, study and bath at the other; the central portion of each floor is a large porch which can be enjoyed either open or closed.

The site was rather small and irregularly shaped, ranging from 91 ft at the front to 94 ft 3 in. at the rear, and from 55 ft 3 in. at one side to 64 ft 3 in. at the other. The slope of the land across the width of the lot permitted a basement area for servants' quarters, pump room and cistern. With the house built on stilts the street level was used for a double carport, utility room, and stair hall.



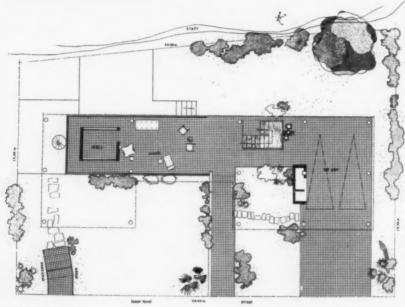




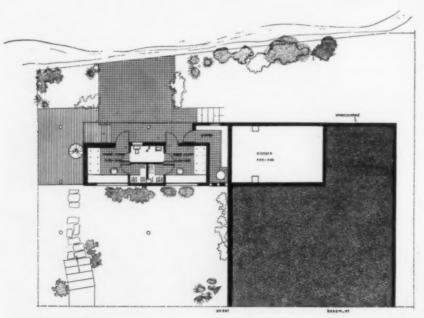
Sliding lowered panels are used to enclose porches when desired, and horizontal lowers are used throughout house for ventilation and sun control. Plan opposite is that of upper two floors; see next page for plans of lower floors



7. Havana, Cuba: Perez Farfante, Owner; Frank Martinez, Architect



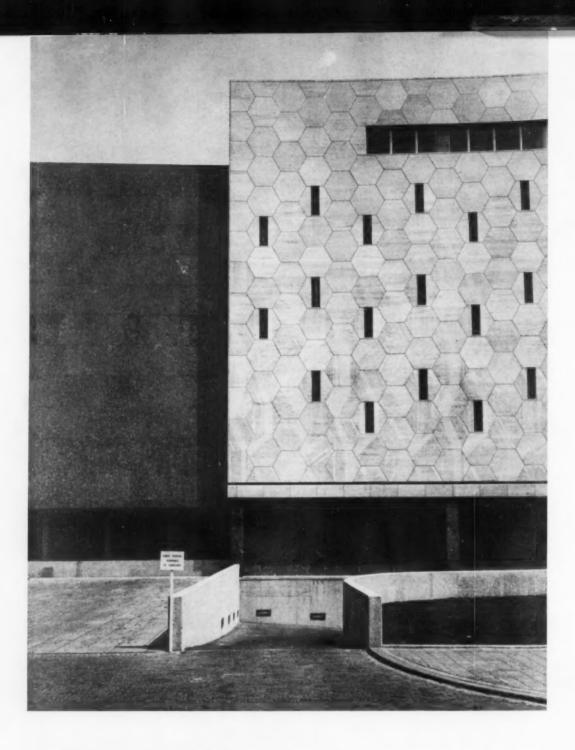
Street level



Basement level

# DE BUENKORF





## AN ARCHITECTURE FOR DAY AND NIGHT

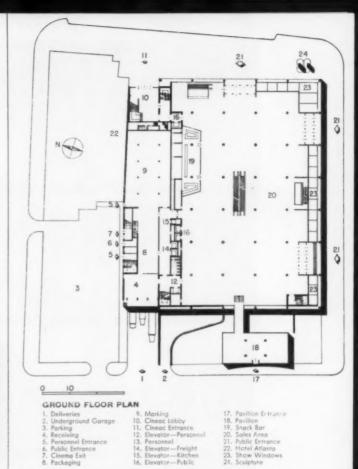
De Bijenkorf Department Store, Rotterdam Marcel Breuer and A. Elzas, Architects Daniel Schwartzman, Consultant Sculpture by Naum Gabo This design offers an intriguing answer to the architectural problem of how to sheathe the upper merchandising floors of a department store. Here, a fenestration pattern that interestingly and dramatically reverses itself from daylight to dark is set within a striated travertine curtain in hexagonal pattern. The glazed slits not only rob the wall of its nudity, but also give the customer the traditional prerogative of examining his purchase by natural light (important in Holland) without destroying the usefulness of the entire wall space for merchandising or storage.

The 82 ft. metal sculpture by Naum Gabo serves as projection at the corner, required by the plan for rebuilding the 650 acres of downtown Rotterdam destroyed in the 1940 air attack. The Cineac movie theater is faced in black brick and set back from the main facade line to form a small plaza.

The twin motor entrances, shown left and bottom, lead to the loading dock and to basement parking.

All photos these two pages. Frits Manshauwer. Photos, page 167, Top: Frits Manshauwer. Battom: Robert Doisneau.









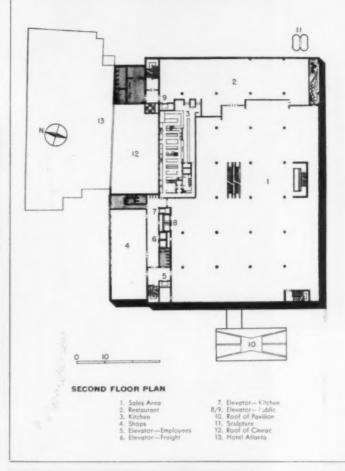


Frits Monshouwer

#### DE BIJENKORF

The solidity of the main parallelepiped — clad in travertine and resting on a base of gray granite — is nicely countered not alone by the fenestration pattern but also by the weblike, refined curtain wall enclosing the office and personnel sections, above, composed of aluminum, clear glass, frosted glass, and black glass; and by the delicate crystalline pavilion, far right, which serves as entrance to the store from the Lijnbaan mall. The catenary roof of the pavilion hangs from two reinforced concrete cantilevered beams which are supported on four central concrete columns.







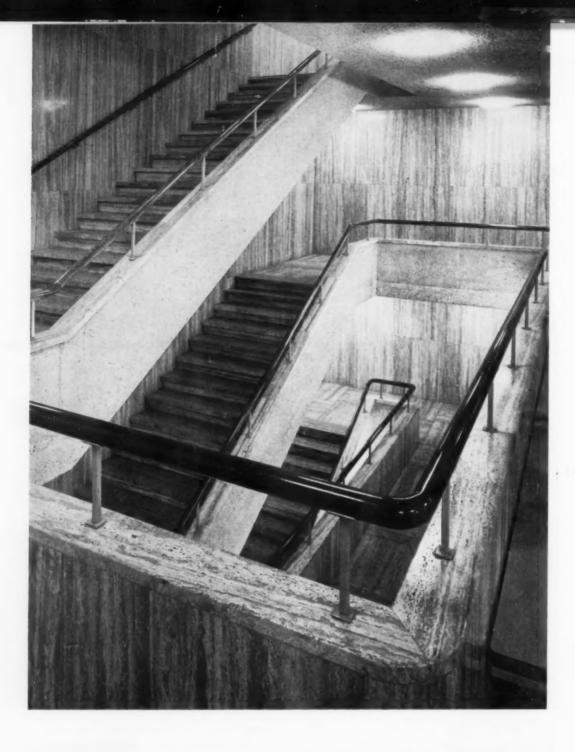




The striations in the travertine, left center, vary in direction to furnish texture and self-weathering; are calculated to let the stonework age gracefully.

From the second floor restaurant one looks out over the Henry Moore figure, at bottom, towards the 1930 store, designed by Willem Dudok.

Photo credits—Top: Spies, two at center: Robert Daisneau, Bottom: Frits Monshouwer



DE BIJENKORF

Above, one sees a main stairway, finished in travertine and with teak handrail. Typical interiors throughout are a well mannered combination of natural teak, travertine, light and dark gray, and cobalt blue — enlivened at each level by small areas or accents of orange-red.

For the sales areas, right, typical ceilings are composed of a suspended rectilinear pattern of wood members—teak for the ground floor and white painted wood above—which house fluorescent lighting panels and open to, yet conceal, the ducts and pipes (painted charcoal gray) above.

The employees' cafeteria and executive offices, at roof level, face out to garden-courts, one of which is shown directly below.

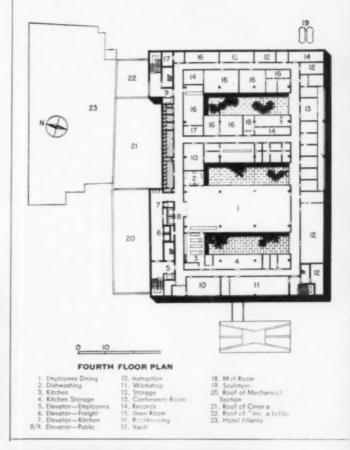
Point-of-sale fixtures, designed by architect Schwartzman, are shown in the three interior photos below. Left, china and glass department; right, cutlery department and wine shop.

The photograph on the page following is a view along the executive floor corridor.

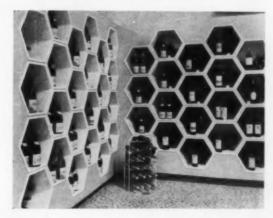
Photo credits-Pages 172, 174, and top: Spies, Bottom: Frits Monshouwer













## ART, ARTISTS AND ARCHITECTURE





1957: Latest work is the monumental sculpture fronting Breuer's deBijenkorf Store, Rotterdam, Holland

SCULPTURE BY NAUM GABO

Naum gabo achieves a dedicated aim — that of creating a monumental sculpture, not to ornament a building, but to complete it — with his huge and dynamic Construction for Marcel Breuer's deBijenkorf Department Store in Rotterdam, Holland. The work also represents the current synthesis of a strong and carefully developed philosophy: Gabo is an active, intense leader of the Constructivist movement in the arts, which developed along with other non-objective theories in the 1900's.

In practice, the Constructivists (so named by early Critics) explore and develop new spatial concepts in many contemporary materials — "Older sculpture was created in terms of solids — the new departure was to create in terms of space."

In theory, Gabo holds that "Abstract is not the constructive idea I profess . . . It is a mode of thinking, acting, perceiving and living . . . Any thing or action which enhances life, propels it and adds to it something in the direction of growth is constructive."

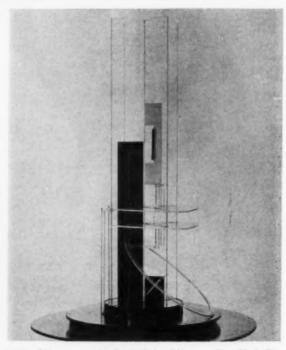
Gabo was born in 1890 in Briansk, Russia, and named Naum Pevesner. He later adopted the name Gabo to prevent confusion with his brother Antoine Pevesner, who is also a constructivist sculptor. He was sent to Munich to study medicine, but soon changed to his real interests — science and the arts. Stimulated by his contacts with all the advanced artists in Germany and Paris, he brought together, in 1913, an avant-garde group in Moscow of architects, engineers and artists. They sought a "significant affinity of the arts." With the change in the Russian artistic climate after the

Revolution, Gabo settled successively in Berlin, Paris, and England. In 1946 he moved to the United States and settled in Connecticut where he now works. Throughout these years, Gabo has progressively developed his work, as well as teaching and lecturing at such schools as the Bauhaus. His work has been widely exhibited, including a joint show with his brother at the Museum of Modern Art in 1948.

The illustrations shown here sketchily illustrate Gabo's developing theory, culminating in the Rotterdam sculpture. In his earliest work he stressed the idea that volumes and simple geometric shapes could be represented by edge planes, where you see into the volume thus defined: to demonstrate that more naturalistic images could be created in this manner, he made several heads in plastic. Next came studies and sculptures of spheric and more complex shapes, and the addition of movement. Actual motors were sometimes used to create the motion; this same changing effect was later achieved by linear constructions within the basic shape which changed aspect as the observer moved. The Rotterdam work incorporates all these concepts in a great tree-like structure: it is embedded in a concrete foundation connected to the building; above ground is a base of black marble clad concrete, from which spring eight twisted, tapered steel branches, joined at the top; the inner image is a web of bronze springs stretched over a stainless steel skeleton. A book of his work will be published shortly, and special exhibitions shown next spring in Rotterdam, Amsterdam, and London.



1916: Head described by edges was among Gabo's early sculptures

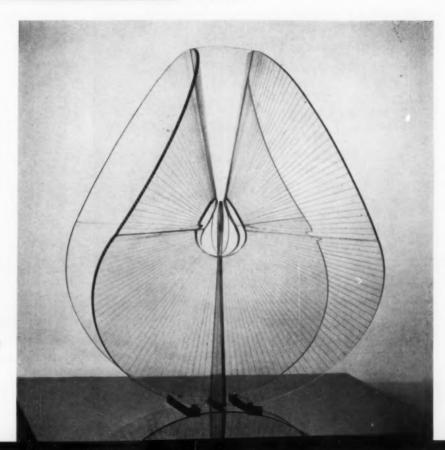


1923: Column now in Guggenheim Museum, New York City



1953: Linear construction of plastic studies motion within a sphere

NAUM GABO

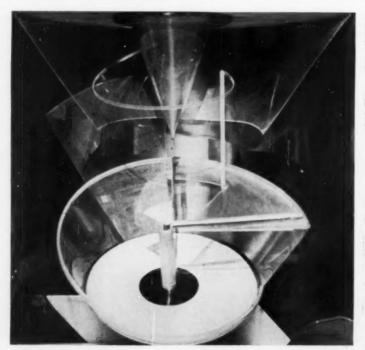


1951: Spheric volume, now at Guggenheim Museum

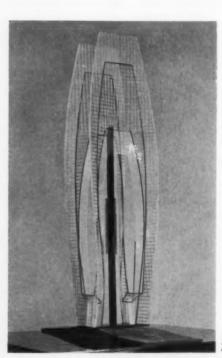


1955: Bas-relief for lobby of U. S. Rubber Company Building, N. Y.

NAUM GABO



1930: Plastic construction for niche in wall of home for Architect Eric Mendelsohn



1953: Monument for Unknown Political Prisoner

# COMFORT AND AMENITIES

By T. H. ROBSJOHN-GIBBINGS\*

If you say to architects that modern houses are totally lacking in comfort, they look at you with pity, for it is one of the most firmly entrenched myths of our time that modern building is synonymous with human comfort.

I have never been impressed with mechanical conveniences. I take it for granted that houses have climate control, plumbing that works and facilities for cooking. And I take it for granted that each year these utilities will work more efficiently. Therefore, I propose to ignore them in tonight's discussion, for I also take it for granted that while these mechanical conveniences get better and better, the inhabitants of modern houses will continue without comfort in the true meaning of the word.

In my opinion true comfort does not come with any of this physical apparatus. Climate control, electric kitchens and lavish plumbing are only the bare necessities of life — cannonized no doubt for commercial reasons — but the bare necessities nevertheless. It is possible to have them all in their most deluxe form and be — as the dictionary defines discomfort — forlorn, desolate, cheerless and inconsolable.

We all have very profound emotional desires about our environment, and it is my belief that in addition to the fulfillment of physical needs, human beings find true comfort only when these emotions are satisfied. To be comfortable we must recognize these emotions and give them fulfillment. Modern architecture with its curious belief that man desires only increasing efficiency has ignored these emotions. Because of this I believe that modern building has never provided true comfort.

One obvious example of the emotional discomfort of modernity is the wall of glass. Living behind it, we must subconsciously feel we are being observed; and though we may not be consciously aware of it, waking or sleeping we are subconsciously insecure knowing that all that stands between us and the elements or an intruder is a transparent screen that can be shattered with one blow.

The open plan is the most uncomfortable fashion ever

<sup>\*</sup> An address by the author before the Architectural League of New York.

#### COMFORT AND AMENITIES

devised on a drafting board. Sitting in the middle of it is the emotional equivalent of being trapped on a traffic island at the intersection of two main streets. Wherever you sit in an open plan — radiant heating and special windows notwithstanding — you are sitting, in my opinion, in an emotional draft.

The blame for the emotional insecurity produced by the modern house is not entirely due to architects. The furniture designer has contributed his share. Today private houses and public places are provided with identical furniture. Such furniture in a house subconsciously suggests the transitory and cold impersonality of public places instead of giving us the emotional security that we feel with furniture identified with the privacy of a home.

No one knew better than the eighteenth century designers that a chair to give emotional as well as physical ease should comfort the back and suggest security by enfolding the sitter. Too many of our spindly contraptions, barely reaching above the base of the spine, leave the occupant teetering in mid-air physically and emotionally.

I realize that the emotional dissatisfactions I have specified are obvious to all of you. There is however one particular feature of the modern environment that I feel is inducing a great part of our emotional discomfort. This is the subconscious loneliness and feeling of total

isolation that comes with an environment of newness.

To be emotionally at ease we must feel companionship with our surroundings. They must have identity with us. They must be a part of us. We are creatures of three dimensions. All the generations of the past are part of us as well as those we love in the present and those whose future extends beyond our own. The newness of the new house is one-dimensional. It claims it has no past and boasts of its future obsolescence. It takes the position of being immune to criticism because it is experimental — in other words we are asked to live in an experimental state of discomfort, and if we gripe about it we are sneered at for being unprogressive guinea pigs.

Houses have always changed, evolving from one form to the other, partaking of the new materials of structure and the evolution of social patterns. I am the last person to wish to turn back this tide of change and evolution, but I think today we have exchanged this valid process of change for mindless novelties; perhaps I should say mindless clichés. For as you know only too well the most banal eccentricities of modernity come simultaneously from the architectural drafting boards as tail fins come simultaneously from the assembly lines of Detroit.

What emotional satisfaction — what sense of emotional relationship to mankind — can we have when we



". . . no one knew better than the eighteenth century designers that a chair to give emotional as well as physical ease should comfort the back and suggest security by enfolding the sitter."



". . . too many of our spindly contraptions, barely reaching above the base of the spine, leave the occupant teetering in mid-air physically and emotionally."

are housed in an environment that puts an iron curtain between us and all of the past to which we are so profoundly related?

In this historical sense the modern house is like a depot where we wait to change trains or an airport which we endure between flights. Who would want to stay in either place for long? In both these waiting rooms we feel for a short space of time as if our lives are in abeyance. We are emotionally withdrawn from our surroundings. This feeling is something we endure as best we can, knowing soon the journey will be resumed.

The same emotional state of limbo can be experienced in a modern house, with the added horror that the flight may never be resumed.

It would be an understatement to say the modern house has affected the amenities. It has practically destroyed them.

When a house is created primarily as an efficient machine indifferent to the emotional well-being and individuality of its inhabitants, we ought not to be surprised that the inhabitants are equally indifferent to the welfare of the house and of its furnishings. If you care little for the house you live in, you are likely to care still less for the amenities. The amenities as we knew them are fast becoming obsolete.

I think we can see this change illustrated most clearly in the present day promotion of household wares. In the past manufacturers of household equipment endeavored to lighten the cares and the chores of the housewife by contributions to a way of life rightly described as "gracious living." It was assumed in those happy times that these innovations were destined for people who loved and cherished their homes. In contrast to this attitude we find today that household equipment seems to be created and merchandised on the assumption that the consumers are a band of hooligans.

I first became aware of this strange new state of affairs when an expensive leather-covered couch of my design was photographed for an advertisement to promote the use of leather. When the advertisement appeared it showed a flaxen-haired moppet gouging her heels into the leather to prove its durability. Since then I have noticed ads for floor coverings over which tough gangs of small fry are tramping muddy feet or spilling bottles of ink. But it is not only floor coverings that are given to the joyful slaughter, there is also open season on walls and woodwork. The four-color ads now show undisciplined brats scrawling viciously over both with a beaming mother in the background joyfully anticipating her part in cleaning up the mess.

This household havoe, now taken for granted, is by no means limited to children. For there are abundant signs that in the new house there is a new type of adult. Only yesterday I saw an upholstery advertisement in

#### COMFORT AND AMENITIES

which two ladies are having a mid-day snack. The one with her feet up on the sofa has spilt her salad. The other, presumably the hostess, is beaming with joy. "Here," says the text, "is the ultimate in upholstery fabric. By gently blotting with a soft rag you can remove salad dressing, olive oil, mustard, ink, soft drinks, soil or baby oil."

Who are these new householders for whom furniture and equipment must be scuff proof, mar proof, spot proof, tear proof, dent proof—or, in other words, guaranteed slob proof?

What new form of amenity and what new type of householder would demand that a mattress before it is considered practical be given what a news report describes as a "torture test." "A five-ton roller," says the report, "ran back and forth over a standard mattress . . . all day long. After three hundred and eighty trips it was examined . . . and no signs of breakdown were visible." What new amenities must we anticipate from these new householders who expect their bedding to be capable of sleeping a herd of elephants?

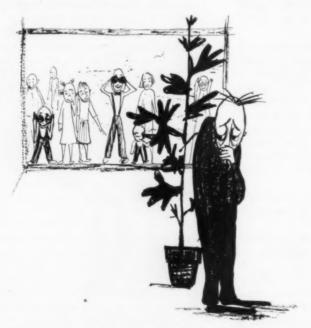
As far as I can make out, the amenities are not merely changing — they are in a stampede. Here is a recent advertisement for sound proof ceilings. "Nobody," says the ad, "has to keep quiet in this sound-conditioned home . . . talk on the phone in the midst of a song fest . . . while mother vacuums the rug or turns on

household appliances without bothering a soul." As proof that this happy bedlam is possible, the illustration shows four characters yelling like maniacs while behind them a dame, identified as "Rita" in the ad, is trying to out-scream them on the telephone. On the right, a stylish stout, presumably mother herself, is setting up drinks for the house. If these are the new amenities, "togetherness" is getting out of hand to a degree not even anticipated by McCalls.

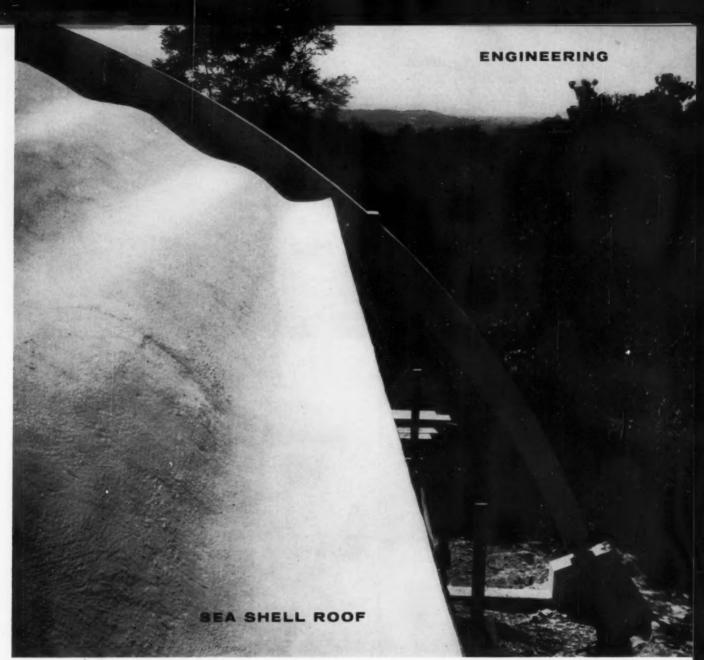
If you believe as I do that this form of advertisement reveals the free-for-all amenities of our times, it will come as no surprise to you to find that the graciousness of visitors is also in a state of flux. Take for instance the story of a departing visitor — as reported in the *Minneapolis Star* — who wrote in the guest book of her hostess, "Your dining room drapes are lousy."

What conclusions are we to draw from this changing scene? Frankly, I cannot tell you. All I can suggest is that when you return tonight to your "torture-tested" mattresses you do not let the thought of it all keep you awake.

We are an enduring race, quite capable of outliving modernity, capable of shaping our environment, capable of remaking architecture in the image of our true selves. When we have done all this — and we will — true comfort and fine amenities will be once again restored to us in full abundance.



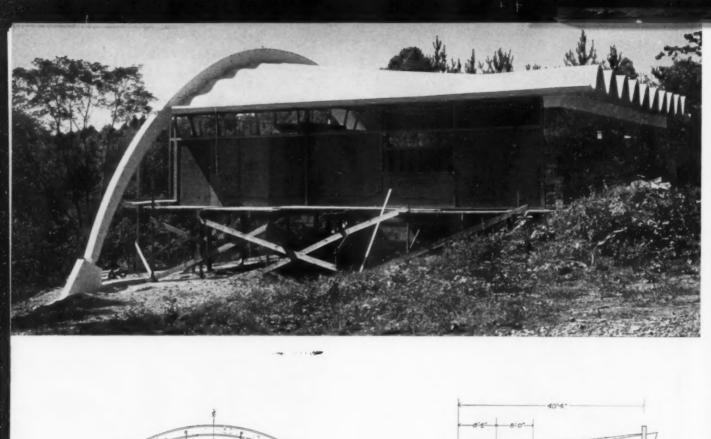
"... we must subconsciously feel we are being observed; and though we may not be consciously aware of it, waking or sleeping we are insecure . . ."

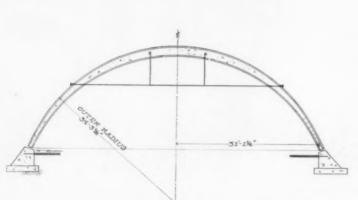


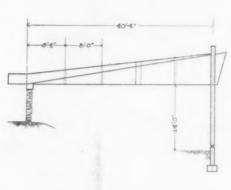
Robert Fischer

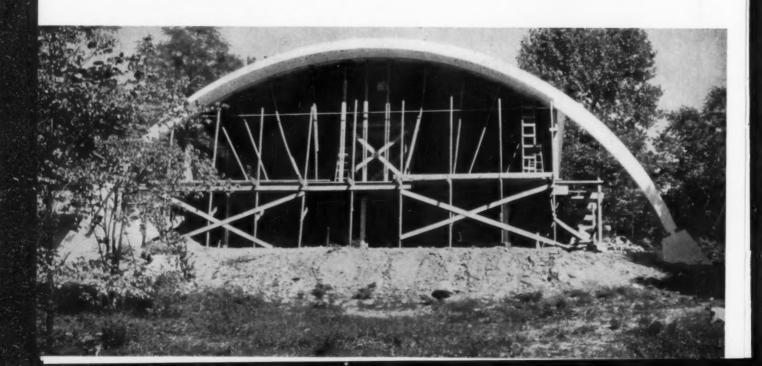
## **ADVENTURE IN STRUCTURE**

George Nakastima, woodworker, wanted to build a shell. Paul Weidlinger and Mario Salvadori, engineers, wanted to build a conoidal shell. And thereby hangs a tale. Nakashima needed another building in New Hope, Pennsylvania where he has his home and workshops. "For some time," he said, "I had envisioned an arch on the edge of my property which drops off some 50 ft to a level area. A year ago I needed more space and thought of using a concrete shell. I had done some thin (35 mm.) concrete work in India in 1937. When Mario and I first talked, he suggested a conoid to fit our slope. It seemed logical and good. Also it lent itself well to an arch. Things seemed easy at first, but as we got into it, the more involved it became, structurally and design-wise." Weidlinger and Salvadori found stresses too high for a full conoid, so in a unique departure they recurved the conoid to take them.

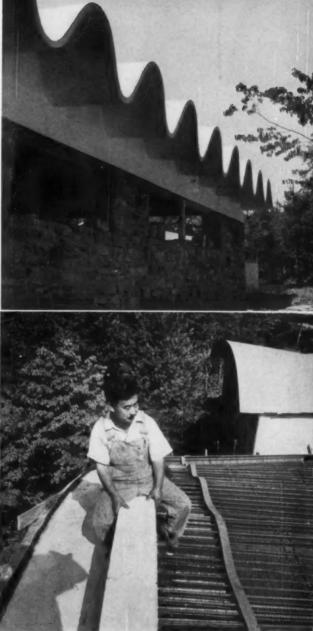








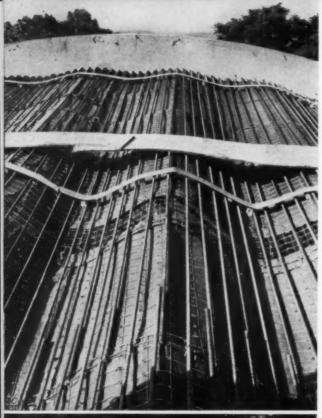
Owner-builder-designer: George Nakashima, New Hope, Pa. Structural designers: Paul Weidlinger, Consulting Engineer, Mario Salvadori, Associate, New York City. Consulting Builder, Joseph E. Heffernan & Son, Philadelphia. The shell spans from the light arch in front to a stone bearing wall in back. Side walls will be stucco with glass above. The front will be all glass. The roof is coated with a cold glaze concrete finish in white. Main floor of the building, which is to be a studio, projects out from block walls to pipe columns behind the arch, and then cantilevers 4 ft more to the back face of the arch. In front elevation note tie rod to take conoid thrust; in side elevation, intermediate stiffeners and stiffening arch are indicated, purpose of which is described later in the text. To satisfy his own curiosity about conoid shell behavior, Nakashima built a small shell in plywood. It will be a permanent building to house the heating plant, allowing the concrete shell to be unmarred by stacks.



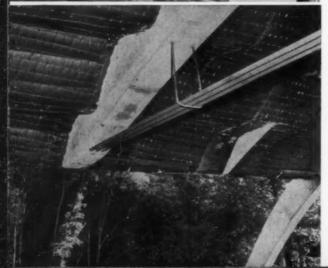
Charles Payre

### SEA SHELL ROOF

It's a physical law that if a particular structural material cannot support a load when it is relatively flat, then its curvature necessarily must be increased. To illustrate, take a balloon with a weak spot. The spot will bulge and increase in curvature to be able to withstand the pressure. This basis for strength has been utilized in the Nakashima shell. An ordinary conoid has a doubly curved surface, and in its front portion, has considerable strength. But since its cross-wise curvature diminishes to zero at the back (a straight line), the stresses there, while not infinite, are exceedingly large. To cope with the problem, the engineers decided to run a series of small conoids from the back to the front of the roof, corrugating the surface so that it has somewhat the appearance of a sea shell.







Welded wire fabric lath draped over stringers provided the form for bar reinforcement and concrete. At the back of the shell, where corrugations are deep, plywood was molded to get accurate curvature. The stiffening arch and its tie rods can be seen in the lower left photo; also one of the intermediate stiffeners. Rows of stiffeners are 8 ft on center, but due to staggering of the rows they are 16 ft apart in a longitudinal direction. The underside of the shell is intended to be coated with sprayed-on, asbestos fiber plaster. A sheath will enclose tie rods of the stiffening arch. Cost of both the main and experimental buildings is about \$30,000 for 3000 sq ft, including a half basement. Square foot costs were: formwork, 75 cents (not including labor); reinforcing \$1.08; concrete 60 cents; waterproofing 60 cents; insulating plaster, 25 cents.



#### SEA SHELL ROOF

The front 40 per cent of shell, wherein stresses are reasonable, was fixed to behave like a conoid by providing a stiffening arch 16 ft back of the front arch, both arches taking the thrusts of this section of shell. To insure cross-wise rigidity for transmitting thrusts, stiffeners were inserted halfway between the arches in alternate corrugations. (Making a shell wavy weakens arch action.) Since in any proper conoid, there is no support from walls along the sides, these edges necessarily act as beams. If there had been no stiffening arch, the edge would have had to be considerably thicker. The rest of the shell, with stiffeners used this time to maintain corrugations instead of giving cross-wise stiffness, works as a series of long narrow conoids.



## EVOLUTION AND SIGNIFICANCE OF SHELL DESIGN

Conoidal shells are rarely used in the United States although in Europe (especially when used in multiple for monitored industrial buildings), they are encountered frequently. A conoidal surface is formed by moving a straight generator with one

DARABOLA

GEOMETRY OF THE REGULAR CONOID

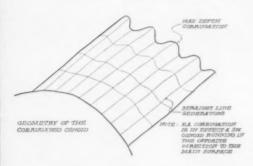
end on a straight line and the other on a curve such as a circular segment or a parabola. The resulting surface has two curvatures of opposite sign similar to those of the hyperbolic paraboloid, and for this reason exhibits related properties

regarding strength and buckling. In ordinary applications, only the curved portion of the complete conoid is used, and the flat

n of the complete lis used, and the flat ut off. Although an approximate distribution of Longitudinal stresses in the concrete onoid was corrugated

end where the curvature vanishes is cut off. Although an attempt was made to use the full conoid, the stresses near the flat end exceeded the allowable stresses in the concrete of the shell. To remedy this the main conoid was corrugated with small conoids sloping in the opposite direction to provide large curvatures at its flat end while diminishing to zero where the curvature of the main conoid is sufficiently large.

The resulting shell has an entirely new form and represents a new application of the conoidal shell. In more conventional types of reinforced concrete structures, it is



customary to distribute the material in accordance with strength requirements of the member. This requires heavying up of the structures. In the present shell, however, instead of distributing the materials according to the strength requirements, the shell curvatures, so to speak, conform to these requirements, while its thickness is kept constant. In this regard, the shell illustrated here is a new departure in the design philosophy of reinforced concrete shells, inasmuch as a rigid geometrical form was not kept but rather modi-

fied to suit the particular application. The idea of modifying the shape of a shell in order to produce the required strength through form lends itself to a wide variety of applications. It must be presumed that two essential difficulties had previously prevented this application: the complicated calculations necessary to determine stresses, and the high cost of forms on which to pour the concrete. Both were overcome in the present case by thorough investigation of possible shell behaviors and by the use of welded wire fabric lath over stringers for pouring concrete.

# HOSPITALS

As a planning assignment, hospitals would strain architects much harder than they do were it not for the extensive research material available. Not many types of buildings have been so thoroughly studied as hospitals were since, say, the early beginning of the Hill-Burton program. Before that hospital planning was studied only by a few architectural firms and a handful of medical consultants, and the know-how of hospital planning had scarcely left the realm of black magic. Now almost any architectural firm can safely undertake a hospital commission, confident that the hard background study of the subject has largely been done for them, and is well recorded in architectural literature. Current research is growing, moreover, especially under federal grants to various groups for specific studies.

The major study project was carried on in the U. S. Public Health Service, where the architectural and engineering branch undertook the mammoth job of researching hospitals department by department, marshaling and sifting the opinions, the data, the hopes, the needs of medical and nursing groups, and finally drawing plans for each element in the hospital. These elements have appeared in great numbers; all of them were published in these Building Types Studies in Architectural Record, were brought together in book form in 1953.\* Under the late Marshall Shaffer, the architectural unit of the Public Health Service became a sort of world center of hospital planning. Nothing that came out of the office was ever regarded as mandatory, no plans were considered "standard," but rather all was regarded as background help for architects and hospital groups, toward the end of getting our money's worth in hospitals.

Three recent studies by PHS architectural group, now headed by August F. Hoenack, are reported in this Study: 1. a newly planned pediatrics nursing unit for a general hospital, as a sort of graphic focus for a new report by the American Academy of Pediatrics; 2. graphic studies of physical therapy department of a general hospital, these similarly going with a text study by joint committees of the American Hospital Association and the American Physical Therapy Association; 3. architectural details and lengthy text report on radiation and architectural considerations for Cobalt 60 units, developed by various Public Health Service specialists along with a committee of the American Hospital Association.

Rounding out this Building Types Study are three extra special hospitals, illustrating some of the advances that private architectural firms have been contributing as their share of the lengthening story of better hospitals for America.

- Emerson Goble

<sup>\*</sup> Design and Construction of General Hospitals, by U. S. Department of Health, Education and Welfare, Public Health Service, F. W. Dodge Corporation,



#### A GREAT HOSPITAL BUILDS TO KEEP UP WITH THE TIMES

M. S. Kaplan Pavilion, Michael Reese Hospital, Chicago. Architects: Loebl, Schlossman & Bennett; Consultants: The Architects Collaborative; Medical Consultants: Dr. Jacob Golub; Mechanical Engineer, Robert E. Hattis; Structural Engineer: Alfred Benesch and Associates; Landscape Architects: Sasaki & Novak; Furnishings and Interior Colors: Watson and Boaler, Inc.

A famous old institution on Chicago's South Side, Michael Reese Hospital, is registering advances to match those of its neighborhood. This is the great area along the lake front that is being completely redeveloped, with huge apartments. Michael Reese decided to do likewise, and is now engaged in a complete rebuilding program, which will eventually replace all its old buildings and will increase bed capacity from 700 to 1200. The Kaplan Pavilion forms the nucleus of the new campus scheme; its present 112 bed capacity will be

increased to 280 and its facilities will be added to.

The architectural solution strives to combine the many hospital activities, facilities and equipment into convenient functional relationships; and by the use of simple easily maintained materials, cheerful colors, pleasant, sunny exposures, and carefully proportioned spaces to create a pleasant non-institutional environment. To this end the interiors have been kept small in scale where possible. Most patient rooms face south, and windows extend from wall to wall and sill to ceiling, in order to provide a large expanse of glass and an open feeling; light and view are controllable by the patient, as suits season, lighting conditions or moods.

In this present building all food service comes from the kitchen of another building on the campus, by food truck through a tunnel. A later addition to this pavilion will house a new kitchen for the whole hospital.

This building is completely air conditioned. Minimal

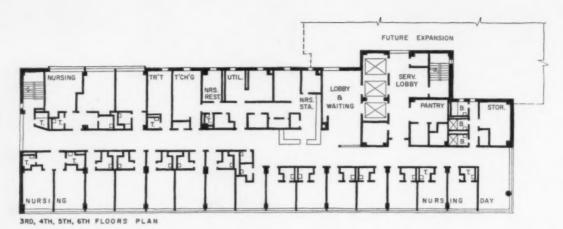


cost was achieved by using individual cooling and ventilating units in each room of patient areas. Each patient thus has been given individual control of his room conditioning. The same piping circulates chilled water in summer and hot water in winter.

A single-conduit type send-and-return automatic switch pneumatic type system interconnects the pavilion and all other buildings. The central doctor's call and message center also integrates all campus buildings and is so arranged that any doctor can register his arrival and departure from any point on the campus.

Expansion of this unit will be vertical; six added floors of nursing units are provided for in mechanical installations. The scheme also calls for a two-story wing to house central facilities for the whole campus, such as central record room (a present office wing is omitted in the plans here shown), main kitchen, new operating department, out-patient facilities and doctors' offices.













Above: doctors' lounge, first floor; below left: pediatrics waiting room, radiology suite; below right: reception desk, main lobby





and a month of the same of the



Left: each nursing room floor has a large, bright day room



Above and left: main floor waiting room is the most formal



Left: office wing has smaller waiting room, cashier counter

Right: staff dining room, basement floor, plan not shown

Right: administrator's office is large enough for meetings



Below and right: pharmacy and gift shop off main lobby





ARCHITECTURAL RECORD NOVEMBER 1957 195







Above and left: nurses' station is roomy, has full view



Left: utility rooms, part of nurses' station grouping

Left: sterilizing room, part of large basement work area



Above and right: large manufacturing pharmacy, basement



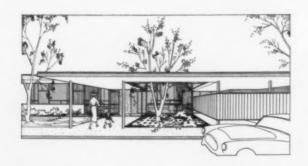
Right: typical two-bed room, beds aligned on one wall



Right: single bed room illustrates window arrangement



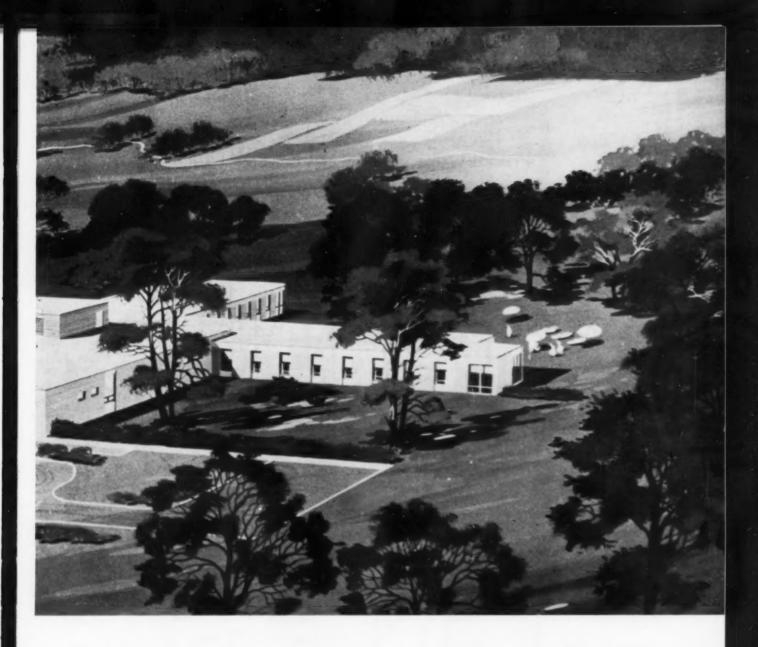
## PREPLANNED SUPPLY SYSTEM PERMITS LOGICAL PLAN



Proposed Berwick Hospital, Berwick, Pa. Architects: Noakes & Neubauer; Associate Architect: Edmund George Good, Jr.; Medical Consultants: Gordon A. Friesen Associates; Consulting Engineers: Shefferman and Bigelson

An "AUTOMAT" SYSTEM of organizing and dispatching hospital supplies, developed by Consultant Gordon Friesen, has permitted Architect Edward Noakes to arrange a very interesting plan. A 92-bed hospital on one floor is a considerable expanse of complicated departmental dispositions, and the supply system of any hospital is an important determinant of the plan arrangements.

Friesen's supply scheme, developed from similar systems he used in the United Mine Workers hospitals, puts a dispatch center in the center of the building, where are grouped central sterilizing department, laundry, bulk and processed stores, laboratory, pharmacy



and linen rooms. From here, by special carts, supplies of everything needed in normal routines go out to every location in the hospital. The scheme is calculated to cut drastically a nurse's daily travel. Naturally the above listed grouping is a radical departure in hospital organization.

It doesn't require much study of the plan to see how logically various departments group themselves around the central supply department. The operating suite is perhaps most important; it is strategically placed with respect to supplies, laboratory, pharmacy, also x-ray and emergency. Incidentally, notice the unconventional arrangement of operating rooms with two-corridor approach — clean supplies separated from dirty, separate access for surgeons, and so on.

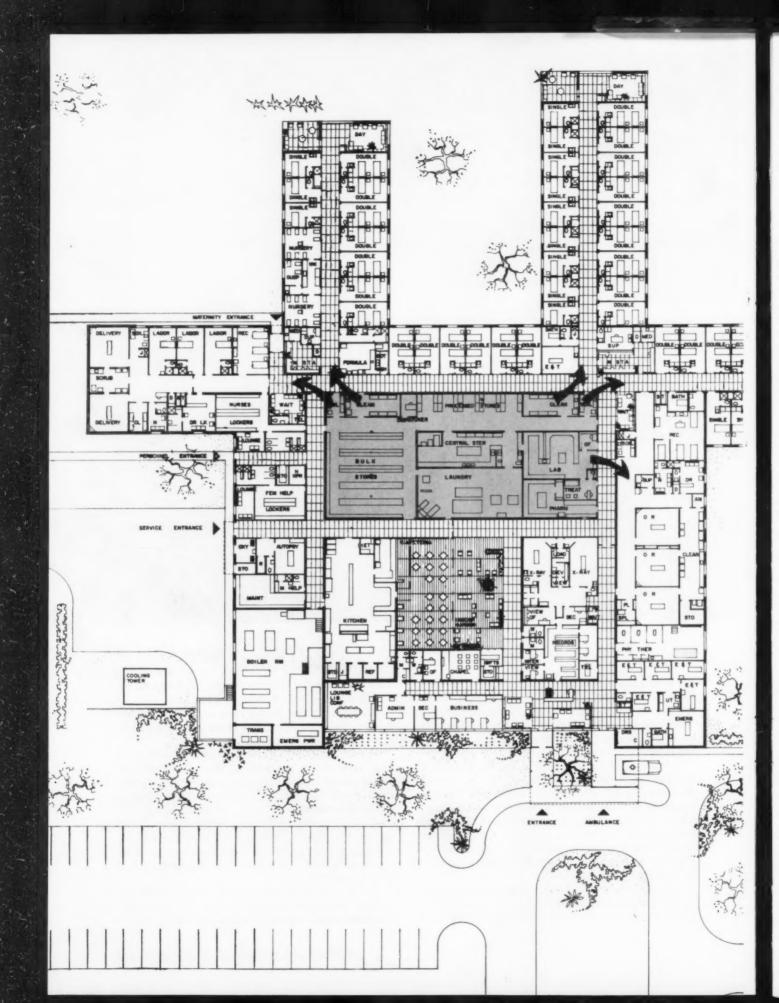
The delivery suite is well isolated, well separated from operating, but again close to the source of supplies. The maternity nursing unit takes off in its own wing from

the corner near the delivery group; it can expand toward the center of the building as required.

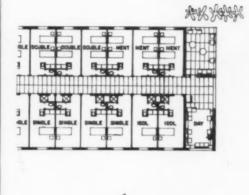
The nursing units cluster close around the central supply, coming to a focus in two nursing stations, well removed from traffic and noise.

The emergency suite is close to the main entrance, an idea Friesen rather insists upon. Notice that the receptionist can see into the emergency corridor, but waiting room guests are shielded from possibly unpleasant sights. This control from main desk would be very important in the wee small hours. So many people, in an emergency, naturally drive to the front of the hospital, points out Friesen, and how are they to know they should go around to the back, and then perhaps find only a locked door?

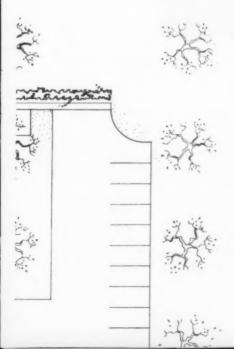
An especially good feature of this plan is the service entrance and short delivery corridor. The important departments to be served — boiler room, kitchen, stores,











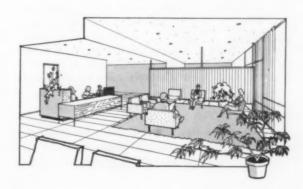


and so on, cluster neatly around this corridor.

The whole plan is worthy of study, representing an almost complete rearrangement of traditional groupings.

The architects express themselves as being quite happy about the cost data. The building itself came out quite reasonably - some 50 per cent of the total cost is represented by mechanical and electrical, allowing for future air conditioning of the whole plant. Total cost of the project, on the basis of bids, runs to \$1,284,600, or \$13,960 per bed for a capacity of 92 beds. The general construction contract puts this per bed cost at \$12,174, or \$18.24 per square foot, \$1.53 per cube. (This is going up to \$18.73 per square foot in a proposed change order involving air conditioning, the earlier figures representing air conditioning completely installed for only operating, delivery and nursery suites.) The total project cost included \$75,600 for Group I equipment. Group II equipment, not included, is estimated at \$88,800, though much Group II and Group III is being re-used, from their existing hospital.

Construction is masonry bearing walls, bar joist and poured gypsum roof construction, concrete slab on ground, concrete block partitions plastered.





Methodist Hospital of Southern California, Arcadia, Cal. Architects: Neptune and Thomas; Structural Engineer: John Minasian; Mechanical Engineers: Levine & McCann; Electrical Engineer: John R. Kocher; Landscape Architect: V. H. Pinckney



## GENERAL HOSPITAL WITH UNIQUE PSYCHIATRIC UNIT

One of the advances registered in this hospital is the inclusion of a 25-bed psychiatric nursing unit, first in a California general hospital. Another first is a ceramic veneer panel for a curtain wall exterior, conceived by the architects for this building (Architectural Record, Oct. '56, p. 266).

The psychiatric unit is especially pleasant; it is on the first floor, and has two enclosed patios for use by patients; some of the patients' rooms open, through shatterproof glass, directly into the larger court. The unit is arranged for the isolation of a group of disturbed patients, with access to the smaller patio. A large day room occupies the space between the courts.

The hospital is planned in bi-nuclear fashion, with the nursing units stacked up in one section, surgical, administrative, in fact most non-bedroom spaces, grouped in a second portion. This scheme has the advantage, of course, of keeping, in at least the nursing unit, all columns, mechanical systems, plumbing, and so on, in uniform stacks. It permits a great deal of prefabrication of plumbing assemblies on the ground. This placing of masses was also important to the economy of the structural system, since the building is done with lift-slab floors. Columns could be positioned for the floor system, and rooms uniformly designed around them, at least in nursing wings.

The architects, along with Walter R. Hoefflin, Jr., executive secretary of the hospital, worked out a non-conventional arrangement of delivery suite, operating department, recovery room and so on, that is worthy of some study.

The proposed expansion is planned as horizontal, rather than vertical, with another nursing wing added end-to-end to the first one. The building will then take the form of the conventional T, with elevators at the juncture, nursing units on either side.



















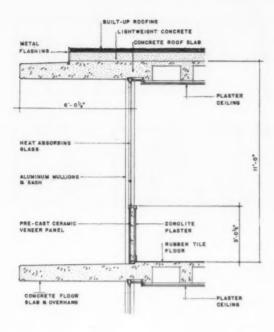




Above and left: staff dining room, and kitchen

Left: main waiting room; main entrance is behind

Left: typical solarium in nursing floors, near elevators







Right, top: operating room has conductive terrazzo floors

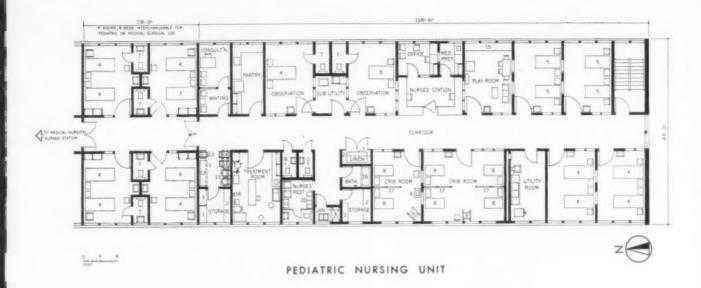
Right: corridor in nursing wing; nurses' station, right

Below and right: typical patients' bed room





office Chalman



This material was abstracted from the chapter of the same name which will appear in the forthcoming manual "The Care of Children in Hospitals" of the American Academy of Pediatrics. The chapter is the work of the Committee on Hospital Care for the American Academy of Pediatrics under the chairmanship of Dr. Lendon Snedeker, Assistant Administrator of the Children's Medical Center, Boston. The architectural consultant to the committee was Mr. Walter E. Campbell, A.I.A. of the firm of Campbell and Aldrich of Boston, Massachusetts.

Planning is by O. B. Ives, Hospital Architect of the Architectural and Engineering Branch, Division of Hospital and Medical Facilities, Public Health Service.

## PLANNING THE PEDIATRIC NURSING UNIT

This scheme for a pediatrics nursing unit, the Public Health Service architects make clear, might have been done in many other dispositions. It is intended, like all similar schemes issued by the Service's architectural department, merely to illustrate a possible arrangement of rooms and facilities considered desirable. This one, for example, is drawn for a fairly typical hospital wing, on the assumption that it would be part of a conventional hospital; but for that imposition the facilities might be still more conveniently arranged. It does, nevertheless, illustrate desirable planning as well as facilities and equipment needed.

Flexibility is the first important objective. The four rooms at the left of the plan, with their own toilets, are intended to be part of the pediatrics nursing unit, or part of an adjoining adult medical or surgical nursing unit, as occasion demands. Double doors are positioned so that the corridor can be arranged as desired. In use presumably older children would be assigned to these rooms, and nurses would not have to exercise close supervision here.

Notice that nurses' station and utility rooms are centered for the shorter corridor, without these four rooms.

The smaller unit, with 16 beds, is close to a minimum, incidentally, for a special pediatrics wing, the number 14 being cited in the manual of which this plan is a part. A pediatrics nursing unit could be larger, but should not be as large as an adult unit, since children need more care.

#### **Bed Rooms**

The one-bed rooms are required for critically ill patients, those who need quiet or those who are disturbing to other patients. When appropriately equipped, they may be used as isolation rooms for patients with known or suspected infection. They are useful also for very short-stay patients and for new admissions.

Preferably all, but at least some of the one-bed rooms, should be large enough to accommodate two beds, to provide over-night accommodations for parents. Infants and younger children, in particular, need their mothers during an illness.

It has been recommended that the minimum floor area for a one-bed room be 100 square feet and that for a two-bed room 160 square feet. It has been found in practice, however, that these areas are minimal and do not provide sufficient space for working around the patient and moving beds and stretchers. Recommended areas are 125 square feet for single rooms and 190 square feet for two-bed rooms.

Each room should be equipped with an adjustable hospital bed and an over-bed table for trays or toys. The hospital bed can be replaced by a crib or bassinet as required, but such

#### NURSING UNIT

- 1. Shelf, 5 ft, 3 in, above floor

- Shelving
  Shelving
  Storage Cabinet
  Adjustable Hospital Bed
  Adjustable Youth Bed
- 6 Infant Scale Linen Cart
- 8. Crib
- Rocking Chair
- 10. Lockers, 12 x 15 x 60 in.
- 11. Table with Mirror over
- 12. Stretcher
- 13 Wheel Chair
- 14. Stroller
- 15. Toy Storage
- Toy Storage
   Raised Bath Tub, with controls on wall
   Cubicle Partition, 7 ft. high with bottom of clear glass 36 in. above floor
- 18. Oxygen and Suction Outlets, 5 ft. 3 in. above floor

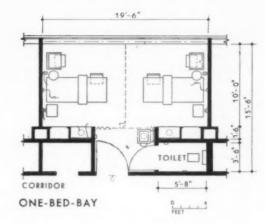
- BED ROOM
- 1. Sliding Window Curtain
- Straight Chair **Duplex Convenience Outlet**
- Nurses' Calling Station
- Wall Light
- Bedside Cabinet
- Oxygen Outlet, 5 ft. 3 in. above
- Telephone Outlet
- Suction Outlet, 5 ft. 3 in. above floor
- 10. Curtain
- Clear Wire Glass in Steel Frame (1296 sq. in, max.) bot-tom of glass 36 in, above floor Waste Paper Receptacle
- Lavatory, Gooseneck spout, Knee or Elbow Control
- Wall-bracket light, switch controlled
- Corridor Dome Light
- 16. Door, upper panel clear wire
- grass

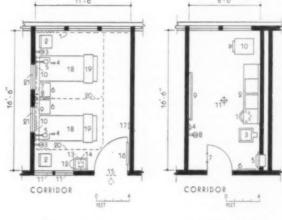
  17. Night Light, switch controlled

  18. Adjustable Hospital Bed
  (Youth beds and cribs may be
  substituted as required)
- Overhed Table
- Cubicle Curtain
- 21. Clear Glass, bottom 36 in.

#### UTILITY ROOM

- 1. Sanitary Waste Receptacle
- Double Compartment Deep Sink in Counter
- Clinical Sink
- 4. Dome Light and Buzzer, 5 ft. 3 in, above floor
- Bedpan Washer and Disinfector
- Bulletin Board, 26 x 24 in
- Clear Wire Glass Vision Panel Duplex Convenience Outlet
- Drying Rod
- 10. Cabinet Pressure Sterilizer 16 x 16 x 24 in.
- 11. Ceiling Light





BED ROOM

UTILITY ROOM

flexibility is predicated on really adequate storage space. Two nurses' call panels should be installed for use when the room is occupied by two children. The call panel should be placed where it is not within too easy reach in rooms which will be used for pre-school children. There should be a bedside cabinet for articles needed in the nursing care of the patient on one side of the bed, possibly a cabinet for favorite toys or other familiar articles on the other side of the bed. This plan shows only the former. Clothing can be stored, to some extent, in this limited space, but it will be preferable in most instances to provide closet space or lockers for such articles.

Every room should have running water. An adult-sized lavatory with gooseneck spout, with either knee or elbow control, should be installed near the entrance. It is desirable that there be a toilet with bedpan flushing attachment and also a clothes closet for one-bed rooms. Cubicle curtains should be available when the room is occupied by two patients. Every one-bed room should have a comfortable chair and a waste paper receptacle.

#### **Cubicles and Partitions**

The use of partitions and cubicles in multiple-bed rooms is quite common but, if they are installed, those in charge of the pediatric unit should be aware of the reasons for their use.

Cubicles are undesirable in that they separate children who otherwise would be able to fraternize and have a happier hospital experience. At the same time it should be recognized that not all children benefit from this social approach.

Cubicles demarcate areas of potential infection, and facilitate the maintenance of precautionary technique, but they cannot be said to decrease airborne infection significantly. The practice of throwing toys from one area to another is discouraged, and visitors are encouraged to confine their attentions to one patient but cubicles increase the difficulty of moving patients. They are relatively expensive to install and keep clean, and in hot weather they greatly reduce air circulation and contribute to discomfort.

If cubicles or partitions are to be used they should permit visibility of patients by nurses and by patients in the same room. They should be made of shatterproof glass above the height of the mattress (36 in.). It is recommended that they be seven feet high and that they extend seven feet from the wall.

#### Isolation Rooms

It is essential that each pediatric unit be provided with one or more isolation rooms. These should be equipped in the same way as ordinary single rooms, except that they require facilities for maintaining isolation technique. When not utilized for this purpose they serve as part of the regular unit, for severely ill children, for patients who need quiet, or for new admissions. It is desirable that they be remote from rooms for non-infectious cases but convenient to the nurse's station.

Each isolation room should have an adult-sized lavatory with knee action control, a hook strip for gowns near the corridor door and an individual toilet with bedpan-flushing attachments. It should be connected with a sub-utility room equipped with a sink and utensil sterilizer. The isolation room should be large enough to permit the use of an additional full-sized bed for a second patient with the same infection or for a mother to stay with her child.

#### Nurses' Station

Every pediatric unit will have its own nurses' station, preferably situated centrally within the unit. As a general rule, rooms designed for the use of the sickest patients and for young infants should be nearest the nurses' station. The location of the nurses' station may also be determined by the hospital's general plan for controlling visitors.

The requirements for the nurses' station in the pediatric unit are much like those in other parts of the hospital. A chart desk and rack, clock and bulletin board should be provided. The nurses' call system will need to be one which can be used by younger children. A television monitoring system for each room would be even more desirable if finances permit. This will, of course, allow visual as well as auditory control of the situation in each room. A medicine preparation room should be provided directly off the nurses' station. It should contain a counter with an acid-resisting sink, cabinets with a locked narcotics compartment above the counter and refrigerator and cabinets below.

A small private office for the supervising nurse should be provided off the nurses' station.

#### Examination and Treatment Room

Separate examination and treatment rooms but, more often, a combination of both, should be provided. A more satisfactory examination can be done in a quiet room with a good light, where the necessary equipment is easily available, and there are fewer distractions for both the child and the examiner.

It is important that all treatments, dressing or other procedures which are painful or disturbing be done where other children cannot watch. For this reason, the treatment room should be located away from patient rooms. If it is also to be used for doing admitting examinations, as will often be the case in the smaller pediatric unit, it should also be near the entrance to the unit.

Two requisites for a good treatment room are an adequate examining-treatment table and ample lighting fixtures. Pediatric diagnosis and treatment procedures are often difficult at best and next to impossible if these requirements are not met. Sound-proofing is another requisite.

Necessary equipment should include supply cupboard, instrument cabinet, bulletin board, nurses' call, clock, dispenser for soap or detergent, and a combination instrument and scrub sink with gooseneck spout and knee or elbow control.

#### Waiting and Consultation Room

A waiting room for the pediatric unit is desirable. It should be located close to stairs and elevators and its entrance should be visible from the nurses' station. Comfortable furnishings, soundproofing, and reading matter all should be provided. If possible toilet facilities should be nearby. Wherever possible, there should be a consultation room for privacy in dealing with parents or children. This may be located near the waiting room and can serve as an office for resident or staff physicians.

The consultation room will often be the only place where nurses can demonstrate the care which the child will need when he goes home. Parent teaching is a very important function of the professional staff, and space must be provided for it. The visitor's room and the consultation and treatment rooms are usually grouped together for convenience in the admission and discharge of patients, but should be shielded from each other.

#### Playroom Space

Every pediatric unit should have a playroom. It should not be looked upon as a luxury or as a space where more beds may be placed in an emergency, but as a therapeutic adjunct for patients who are convalescent or ambulatory.

The present plan puts the playroom next to the nurses' station for control. If the hospital is able to provide adequate supervision, possibly by volunteers, the playroom might better be a porch at the outer end of the unit.

The playroom can be used for group activities and recreation — as a playroom for younger children, for games, occupational therapy and school work for older children, and a social room and library for adolescents. At meal time it is an ideal place for group feeding. There should be tables and chairs suitable both for food service and play activities. Storage closets and shelves for toys and other materials should also be provided.

#### Utility Room

The utility room should be centrally located in each nursing unit. This room requires ample cupboard and counter space, sterilizer, utensil cabinet, sink with drainboard, hot and cold water supply with elbow or knee control. Space will be required for a hot plate and a container for crushed ice for non-drinking purposes.

A bedpan washer and disinfector and a clinical sink should also be provided with a recessed cabinet for specimens near at hand. Since individual bedpans and urinals are provided at each bedside, no rack is necessary.

#### Storage Rooms

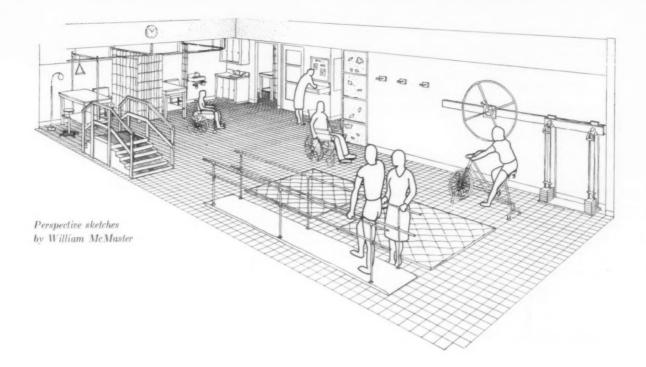
Each nursing unit should have separate storage space for linen, supplies, cleaning equipment and such articles as stretchers and wheel chairs.

If the central linen room is large enough, that on the unit need only be large enough to accommodate one day's supply of linen. In the case of infants, a day's linen supply can often be kept in the bedside cabinet.

The stretcher closet should be adequate for the transportation needs of the unit. In a small hospital this area might even be used for the storage of beds of different sizes. A cupboard with shelving may be provided above the level of the stretchers and wheel chairs for additional storage space.

#### Oxygen Supply

In spite of additional expense in construction, some hospitals, even small ones, are providing an oxygen and suction outlet for each patient room because of the obvious advantage of having them where they are needed without having to move patients to an oxygen outlet. If only certain rooms can be so provided, those to be given high priority are isolation rooms and one-bed rooms where the sickest children are apt to be placed.



This chapter, "Suitable Environment," is from the manual "Physical Therapy Essentials of a Hospital Department" prepared by the Joint Committee of the American Hospital Association and the American Physical Therapy Association.

Planning is by Thomas P. Galbraith and Peter N. Jensen, Hospital Architects of the Architectural and Engineering Branch, Division of Hospital and Medical Facilities, Public Health Service.

## PLANNING THE PHYSICAL THERAPY DEPARTMENT

Of the many environmental factors which condition the effectiveness of physical therapy service to patients, the most important are space, location and work areas. Ventilation, lighting, interior finish and related considerations also contribute toward providing a suitable environment. The keynote is function.

#### Location

Location is closely related to function. The area selected for physical therapy should be centrally located to minimize problems of transporting patients and to facilitate giving bedside treatment when necessary. At least half of the patients treated in a general hospital physical therapy department are likely to be out-patients. With this in mind, special attention should be given to accessibility, and to having as few steps as possible to climb, as few long corridors and heavy doors to negotiate. A ground floor location, convenient for both in-and out-patients and for access to an outdoor exercise area, is recommended.

Availability of daylight and fresh air should also be considered in selecting a location.

In new hospitals, physical therapy is frequently placed in an area which includes other out-patient services, social service, occupational therapy, recreation. It is particularly important that physical and occupational therapy be in close proximity.

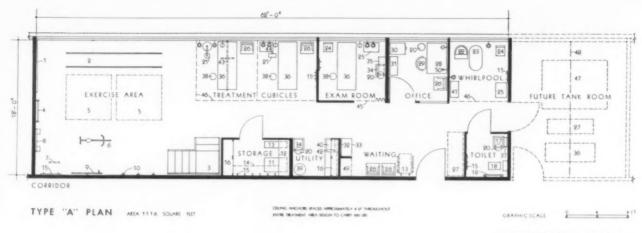
#### Amount of Space

The amount of space needed depends on the number of patients treated, the kinds of disabilities and the treatments required. Also to be considered is the fact that some space-consuming equipment — such as a whirlpool bath, treatment tables, parallel bars, etc. — are minimum essentials for even a one therapist department. These pieces of equipment will not be multiplied in direct proportion to increases in staff and patient load.

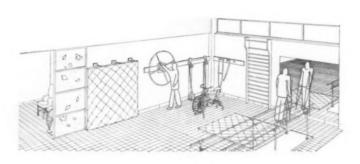
Efforts to correlate bed capacity and physical therapy space requirements are not satisfactory. Hospitals with 50–100 beds may serve large numbers of out-patients. The amount of space given over to physical therapy in a small hospital is, justifiably, out of proportion to the bed capacity.

No absolute standard can be recommended as the amount of space needed for physical therapy in a general hospital. The most that can be said is that, if possible, it is desirable to plan for at least a thousand square feet of floor space, free of structural obstructions. About half of that should be exercise area.

This does not mean that a hospital cannot begin an effective physical therapy service in smaller quarters. Many have done so successfully, using to full advantage whatever space resources they had. But crowded quarters do subject the staff to strain and call for more than ordinary ingenuity and good



NOTE MAJOR PECES OF EQUIPMENT RECOMMENDED FOR ONE PHYSICAL THERAPST AND AID INDICATED ON THE PLANS



humor in order to make it possible for patients to obtain maximum benefit from treatment.

#### Work Space Components

Whatever the eventual size of a physical therapy department, from the very beginning plans must be made to provide certain kinds of work space. These essential components can be expanded, multiplied or refined as the physical therapy department grows but the fundamental requirements are the same for a small or large department. They include: (1) reception area, (2) staff space, (3) examining room, (4) treatment areas, (5) toilet facilities, (6) storage.

Experienced physical therapists have many suggestions for increasing the efficiency of physical therapy departments by giving attention to details of planning and arranging these component work areas. For example:

Reception area — accommodations for in-patients and outpatients, if possible. Adequate space for stretcher and wheelchair patients.

Staff space — private. Office space suitable for interviewing patients, attending to administrative and clerical duties, housing files, etc. Writing facilities for the staff adequate for dictation, record keeping. There should be space for staff lockers and dressing rooms separate from the patient area,

either within the department or near to it.

Examining room — floor to ceiling partitions for privacy. Arranged so that necessary examining equipment can remain in the room permanently. Possible to use this space for special tests and measurements or for treatment when privacy is desirable.

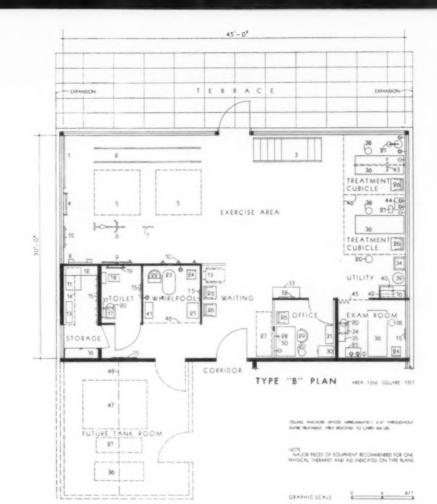
Treatment area — there are three types of treatment areas: cubicle (dry), underwater exercise (wet) and exercise (open). Each is designed to meet the particular requirements of the special equipment used for different kinds of treatment.

Cubicle — each unit large enough for the physical therapist to work on either side of the table without having to move equipment belonging in the cubicle. Preferably cubicles divided by curtains for easier access for wheelchair and stretcher cases, for expansion of useable floor area for gait analysis, group activity or teaching purposes.

Curtain tracks should be flush with the ceiling and curtains should have open panels at the top for ventilation when drawn. Both curtains and tracks should be sturdy. In or near the cubicles, out-patients need a place or locker for their outer clothing.

Underwater exercise area — all equipment requiring special plumbing and water supply concentrated in one section of the department but accessible and adjacent to other treatment areas. Should include a treatment table, especially in the room

- Posture Mirror Parallel Bars
- 13 Steps
- Stall Barr
- 5 Gym Mat
- Stationary Bicycle Sayer Head Sling Attached to Ceiling Pulley Weights
- Shoulder Wheel
- 10. Gym Mat Hooks 11. Cart with Open Shelves
- Open Shelves Wheel Chair 12
- 14. Shelf
- Wall Hooks Wall Cabinet 15. 16.
- Lavatory, Gooseneck Spout Water Closet 17.
- 19. Hand Rail
- Waste Paper Receptacle Portable Equipment
- 21. 22 Adjustable Chair
- Whirlpool
- 24. Chair
- Chair, preferable with arms 26.
- Wheel Stretcher Desk 27
- Swivel Chair 29. File Cabinet
- 31 Bookcase
- Bulletin Board Wall Desk (counter, shelf 33.
- 34
- Lavatory, Gooseneck Spout and Foot Control Wall Cabinet with Lock
- 36 Treatment Table, Storage below Mirror and Glass Shelf over
- Lavatory Adjustable Stool 38
- Laundry Hampe
- Sink with Drainboard 40
- 41
- Paraffin Bath Glass Shelf over Sink
- Overbed Trapeze Three Single Outlets on separate branch circuits. 1 outlet 2-pole, 2 outlets 3-pole
- Folding Door Cubicle Curtain Under Water Exercise
- Equipment
- Overhead Lift Coat Rack
- Telephone Outlet



with a tank or exercise pool. Fixed overhead lifts are absolutely essential for the efficient use of tanks and failure to provide lifts severely limits the usefulness of this valuable equipment. Plumbing and other installation requirements, humidity and noise from motors call for special care and attention. Electrical and metal equipment in other treatment areas may suffer damage unless the underwater exercise area is carefully planned.

Exercise area - very flexible open space planned to accommodate patients engaged in diverse individual or group exercise activities. Used extensively by people in wheelchairs, on crutches or canes, or with other disabilities which limit their motion and agility. At least one wall should be reinforced for the installation of stall bars and similar equipment.

Toilet facilities - separate toilet facilities for patients and staff, if possible. Patient facilities should be designed to accommodate wheelchair patients. If the department serves small children, seat adaptors with foot rests should be pro-

Storage - designed to meet special needs in and near work areas. Should also be storage space on the wards for equipment and supplies usually needed for bedside treatments. For wheelchairs, stretchers, etc., it is best to plan "carport" space, not closets. All storage space should be accessible, simple, well lighted.

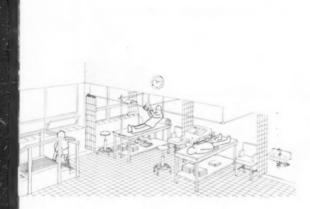
#### Special Considerations

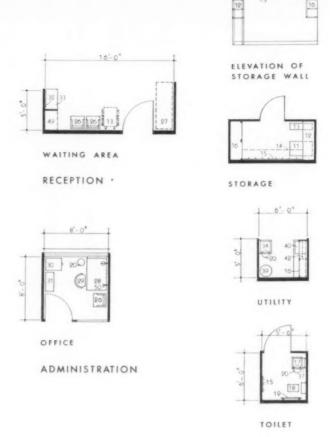
Ventilation. Adequate, controlled ventilation is of extreme importance in a physical therapy department. Many of the treatment procedures require the use of dry or moist heat, or active exercise, which raise body temperatures. A continuous, reliable flow of fresh air is essential to the comfort of patients and staff. This includes protection from drafts.

Air conditioning, desirable for the entire department, will be a necessity for certain areas of the physical therapy department, in most sections of the country. The reduction of humidity for comfort, protection of equipment and reduction of the hazard of slippery floors makes air conditioning vital in the underwater exercise area. It has been demonstrated as desirable in the exercise area and in treatment cubicles, especially where heat producing equipment is used. Air conditioning engineers should be consulted before ventilation equipment is

Sinks. Hospital hand washing lavoratories with hot and cold water mixing outlets, preferably foot operated, should be located at the proper height in convenient places. At least one sink should be of sufficient width and depth to accommodate the care of wet packs and other special washing needs.

Interior finishes. The activity of patients in wheelchairs, on stretchers and crutches subject floors and walls to heavy wear. Materials which will stand up under such rough usage, remain





attractive and require a minimum of maintenance should be specified despite higher costs.

All interior wall surfaces of the department should have a durable and attractive wainscot to protect them against damage by wheelchairs, stretchers and carts. Ceramic wall tile or glazed structural units will serve the purpose but they emphasize the institutional character of the hospital. In patient areas this should be minimized as much as possible. In the last several years vinyl wall covering has gained in popularity as a wainscoting material, and to some extent for the entire wall. Two weights of the material are available; the heavier weight for areas subjected to severe abuse, the lighter weight for other parts of the wall.

The use of decorative colors for interior finishes and equipment is, of course, highly desirable in this department as it is in other parts of the hospital. Research in "color therapy" for hospitals adds to decorators' ideas the therapeutic value of combinations of pastel colors. "Cool" pastels — green, blue, violet and their many derivatives — are considered mildly restful. Some light colors in general are stimulating and may be of advantage in the exercise area.

Doors. For accommodation of stretcher and wheelchair traffic, doors within the department should be at least 40 inches wide. Raised thresholds should be eliminated.

Ceiling moorings. These moorings, strategically located in

the ceiling in treatment areas, have been found useful for attaching overhead equipment such as hoists, pulleys, bars, counter balancing equipment, etc. They should be constructed and attached to joists in such a manner that each supports at least 500 pounds.

#### Layout

It is impossible to anticipate all of the practical problems of layout in a particular building or to say in advance that one plan or another is the right one. A few guidelines, however, may be useful in making decisions about layout.

Expect to expand and plan for it from the beginning. It is impossible to overestimate the value of the exercise area. Give it as many square feet of appropriate space as possible.

Note the need to have the underwater exercise equipment grouped in one area, separate but adjacent and accessible to the other treatment areas.

When deciding which units to place next to each other or group together, consider how they are used by patients, especially the flow of traffic from one unit to another. Try to avoid needless traffic. Try to conserve the energies of staff.

Visit other physical therapy departments and find out what the physical therapists like or would like to change in the layouts of their own departments.

- Posture Mirror Parallel Bars Steps
- 2.

- Stall Bars Gym Mat
- 5. Gym Mat
  6. Stationary Bicycle
  7. Sayer Head Sling Attached to
  Ceiling
  8. Pulley Weights
  9. Shoulder Wheel
  10. Gym Mat Hooks

- 10. Gym Mat Hooks
  11. Cart with Open Shelves
  12. Open Shelves
  13. Wheel Chair
  14. Shelf
  15. Wall Hooks
  16. Wall Cabinet
  17. Lavatory, Gooseneck Spout
  18. Water Closet
  19. Hand Rail
  20. Waste Paper Recentacle

- 19. Hand Hall
  20. Waste Paper Receptacle
  21. Portable Equipment
  22. Adjustable Chair

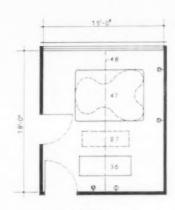
- 21. Portable Equipment
  22. Adjustable Chair
  23. Whirlpool
  24. Chair
  25. Table
  26. Chair, preferable with arms
  27. Wheel Stretcher
  28. Desk
  29. Swivel Chair
  30. File Cabinet
  31. Bookcase
  32. Bulletin Board
  33. Wall Desk (counter, shelf below)
  34. Lavatory, Gooseneck Spout and Foot Control
  35. Wall Cabinet with Lock
  36. Treatment Table, Storage below
  37. Mirror and Glass Shelf over Lavatory
  38. Adjustable Stool
  39. Laundry Hamper
  40. Sink with Drainboard
  41. Paraffin Bath
  42. Glass Shelf over Sink

- 41. Paraffin Bath
  42. Glass Shelf over Sink
  43. Overbed Trapeze
  44. Three Single Outlets on separate branch circuits. 1 outlet
  2-pole, 2 outlets 3-pole
  45. Folding Door
  46. Cubicle Curtain
  47. Under Water Exercise
  Equipment
  48. Overhead Lift
  49. Coat Rack

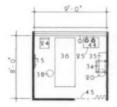
- 49. Coat Rack 50. Telephone Outlet

26-0"

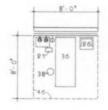




TANK ROOM



EXAMINATION ROOM



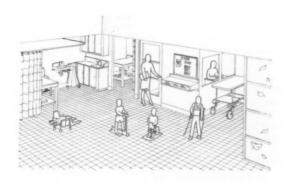
TREATMENT CUBICLE

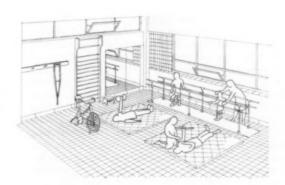


WHIRLPOOL

EXAMINATION AND TREATMENT







The "Atomic Age" has been felt in many fields of human endeavor, but perhaps one of the most important of these fields has been in the field of medicine. At the present time we are using atomic energy in medical tracer studies, as a source of internal and particular organ irradiation, and as an external treatment of disease. This article is concerned with atomic energy as a source of external treatment in teletherapy units. Details are shown in Time-Saver Standards starting on p. 227.

By the term teletherapy, we are restricting ourselves to the use of radiation at a distance; that is, the subject and source are separated by a distance of 50 centimeters or more. In particular, we are concerned with the use of the radioactive isotopes cobalt-60 and cesium-137 as sources of radiation in teletherapy units.

We have restricted our discussion to Co<sup>60</sup> and Cs<sup>137</sup>, primarily because they are the more familiar of the isotopes suggested for use in teletherapy units. We are not including the use of radium and high energy X-rays, since some of the problems associated with these are quite different in their solution and nature.

The primary purpose of this article is to furnish architects anticipating a teletherapy unit, information on basic radiation protection ideas and techniques, and to serve as a guide in the solutions of certain architectural problems. We are by no means attempting to evaluate the advantages and disadvantages of Co<sup>6,8</sup> and Cs<sup>157</sup> units against other types of units.

#### DESIGN OF TELETHERAPY UNITS

Radiation and Architectural Considerations For Cobalt 60 Units

by Wilbur R. Taylor, William A. Mills and James G. Terrill, Jr.\*

In Planning a cobalt installation, it should be understood that each type of machine and its location within the building will present a different problem which will require an individual solution. Consequently, no one type plan can be designed which will take care of the various shielding requirements presented by the different machines and installations. The architect is dependent upon other professionals for specific technical information he needs before he can intelligently design a building containing a cobalt teletherapy unit. The problems incurred may materially affect the orientation, location, and structural and functional design of the building. Therefore, during preliminary design stages, close cooperation between architect, radiologist and radiation physicist is necessary to develop an efficient and economical layout.

It should be noted that the Atomic Energy Commission places responsibility upon the applicant for conditions of installation and use of the facility. Since the use of a facility is largely dependent upon the conditions of installation, it is to the applicant's advantage to secure the services of a radiation physicist at the inception of a project. His function is to advise the applicant and architect on radiation requirements, assume responsibility for the final design as to shielding provided and furnish the supporting information required in Application Form AEC-313 relative to exposure rates in areas surrounding the teletherapy room and occupancy factors assigned.

Fundamental decisions as to: (1) the type of machine, (2) strength of the source, (3) desired location, and (4) the shielding required for floor, walls and ceiling must be made before the building's structural system can be designed. During the early design, it may be determined that the structural system cannot support the weight of the shielding, or perhaps soil conditions will not permit sufficient excavation for a subgrade installation. It may then be necessary to change or alter one or more of the following: the machine or its operation, the source strength or the location of the room.

To those not familiar with such shielding problems, the included plans have been developed to illustrate the shielding necessary for three types of machines in specific locations. However, before considering the detailed plans, it may be desirable to discuss some of the general requirements of such facilities.

#### Location

The cobalt suite should adjoin the X-ray therapy department. This location permits the joint use of waiting, dressing, toilet, examination, work and consultation rooms. In addition, it offers the important advantage of having the staff concentrated in one area, thereby eliminating the considerable

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loss of time involved in traveling to a remote location. This is an important consideration and justifies the cost of any additional shielding that may be necessary to achieve it.

A location below grade, unoccupied above and below, will require less shielding. However, if such a location separates the cobalt and the X-ray therapy department, it may be more costly in both loss of staff time and efficiency than the cost of concrete shielding amortized over several years. If, for example, twenty-five minutes per day are lost in traveling to a remote location, one additional patient could be treated in this time each day — or 240 patients per year. Assuming a staff salary of \$20,000 per year, this loss of twenty-five minutes per day results in an indirect salary loss of \$1032 per year, which would soon equal the cost of shielding in a new facility.

A corner location for the cobalt room is usually desirable since through traffic is eliminated, only two interior walls require shielding, distance to the property line utilizes the inverse square law to reduce shielding and the structural requirements are more easily solved.

#### Teletherapy Room Details

Size. The room size may vary to suit different manufacturers' equipment. A room approximately 15 ft by 18 ft by 9 ft-6 in. plus the necessary entrance maze, will accommodate most of the machines commercially available with the exception of the largest rotating models. For reasons of cost, the room should be as compact as possible after allowing space to install the equipment and to position the treatment table.

Shielding. The shielding necessary for a room must not only be considered in terms of floor, ceiling and wall shielding, but also such things as doors, windows, ventilation and heating ducts, and safety locks. Radiation that might escape through such possibilities could result in overexposure to personnel, if proper precautions are not taken.

Entrance. The primary purpose of specific entrance construction is to protect personnel. It should also provide sufficient space to admit a stretcher and the largest crated piece of equipment. In some cases, a considerable savings in cost of assembling equipment may be had by making the door and maze large enough to admit the crated assembled machine. For this purpose, some manufacturers specify a door opening of 4 by 7 ft and a minimum distance of 6 ft at the end of the maze.

Rather than add large amounts of lead to doors, the shielding problem may be solved to some degree by having the door to the teletherapy room open into a maze. This maze should be built so that no primary radiation could fall directly on the door. In designing doors for such a room, a good practice is to have a door of wood with a layer of lead. This lead can either be on the inside surface, or between layers of wood. Commercially available x-ray doors serve well for this purpose. The space between the door and floor can usually be shielded by using a lead strip under the door or by making a slight rise in the floor containing lead, on the outer side of the door. Lead shielding at the jamb and head between the frame and buck may be eliminated by the use of a combination frame and buck set in concrete.

For safety precautions, the door lock should be such that the door can be readily opened from inside the cobalt room.

Control View Window. It is standard practice to locate this window at a height which will permit the operator to be

seated during the treatment period, 4 ft-0 in. from the floor to the center of the window being an optimum distance. In plan, the window should be located in the area of minimum radiation and for convenient observation of the patient. This position, for a rotational machine, would be along the axis of rotation, and for a fixed beam unit, 90° to the plane of tilt, (See Time-Saver Standards.)

From the control view window the entire room should be in full view, using mirrors when necessary. The glass should contain lead or other materials in amounts which would provide shielding equivalent to the surrounding concrete. The frame is usually packed with lead wool and should be designed to offset the shielding loss of the reduced concrete thickness at beveled areas. The cost of such special glass and frame increases rapidly with size and an 8 by 8 in. window is considered an optimum size.

Heating and Air Conditioning. The only problem in relation to heating and air conditioning not encountered in other buildings is that of providing shielding where walls are pierced with supply and return ducts. The usual solution is to locate ducts and openings in walls which are least subject to radiation and offset the path of ducts through the wall, lead or other high density material being added, where necessary, to maintain the shielding value of the wall displaced by ducts.

Electrical Service required for the machine, will vary with each manufacturer's equipment. Voltage will vary from 110-single phase to 220-three phase for large machines.

Room lighting should assure good over-all illumination, preferably from cove lighting or an indirect type of fixture. It is essential that the operator be able to observe any movement of the patient during treatment and shadows produced by a rotating machine interfere with observation.

In providing a safety lock for the door, it has been found of great value to interlock the machine control with the door, so that opening the door automatically shuts off the machine.

Conduits should be provided for power and control wiring.

Environment. The general effect to be created in this department should be one of cheerfulness and restfulness. Use of color and even murals have been used effectively on the walls of the cobalt room.

The usual hospital finishes such as acoustical ceiling tile and resilient flooring are desirable in this area.

Remodeling. Unless previously designed for super voltage X-ray, remodeling an existing building can be expensive. It is often impossible to build in sufficient shielding which makes it necessary to control nearby occupancy and restrict direction of the beam, thereby handicapping the usefulness of the machine. Other problems such as relocating plumbing, heating, electrical services and disturbing the normal operation of the building during remodeling must be considered.

In new construction, concrete shielding is relatively cheap, but in remodeling the cost is high. For this reason the use of masonry units may be preferable since no form work is necessary and the work can be performed intermittently. Good workmanship, of course, is necessary to prevent voids in mortar joints.

In some cases it might be better to add to the building, rather than to remodel an existing portion. Normal hospital operation would not be interfered with, costs may be lower and a more efficient layout would probably result. This article was developed at the request of the Committee on use of Radioisotopes in Hospitals of the American Hospital Association and as a result of many requests from architects and hospitals for information on the design of such facilities.

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#### FUNDAMENTALS OF RADIATION PROTECTION

In considering a teletherapy unit, architects are immediately thrown into a world of new definitions, concepts and terms

Listed in the Glossary are some of the more frequent occurring definitions that turn up during the course of a discussion on teletherapy units.

In addition to definitions and terms, one must become acquainted with new technical fundamentals having to do with the decay of radioactive isotopes, and the passage of the radiation through matter.

A very important law having to do with radioactive decay is stated simply by the equation:

$$N = N_0 e^{-\lambda^t}$$
(1)

Where,

N = the number of atoms of the isotope present after a time = t,

 $N_0$  = the initial number of atoms present at a time equal to zero,

e = the base of the natural log = 2.718,

 $\lambda$  = the decay constant for the isotope.

This is usually written in the form of the given half-life for the isotope, and appears as:

$$N = N_{0}e - \frac{0.693}{T}$$
 Where,  $T = \frac{0.693}{\lambda}$ 

For our purpose we will not speak of the number of atoms decaying in terms of N, but we will use the more familiar term of *curie*. Where, as defined,

1 curie = 3.7 x 10<sup>10</sup> disintegrations/sec. This is approximately the disintegrating rate of 1 gm of natural radium atoms. In speaking of Co<sup>60</sup>, we must keep in mind that each disintegrating atom results in the emission of two gamma rays, and each disintegrating atom Cs<sup>137</sup> results in one gamma ray. We will discuss this in greater detail later in this paper.

Another important fundamental to which one becomes exposed is that pertaining to the intensity of radiation, and is expressed as:

$$I = \frac{I_0B}{D^2} \quad e^{-\mu x} \qquad (2)$$

Where,

I = The intensity in mr/hr at a distance of D cm from the source

 $I_0$  = The intensity at 1 cm from the source

D = Distance between source and subject in cm

#### GLOSSARY\*

Absorption Coefficient: Fractional decrease in the intensity of a beam of radiation per unit thickness (linear absorption coefficient), per unit mass (mass absorption coefficient), or per atom (atomic absorption coefficient) of absorber.

Altenuation: The reduction of intensity of radiation due to an interposed medium (particle attenuation, energy attenuation).

Backscattering: The deflection of radiation by scattering processes through angles greater than 90 degrees with respect to the original direction of motion.

Build Up Factor: The ratio of the intensity of X- or gamma radiation (both primary and scattered) at a point in an absorbing medium to the intensity of only the primary radiation. This factor has particular application for "broad beam" attenuation. "Intensity" may refer to energy flux, dose, or energy absorption.

Curie: That quantity of a radioactive material having associated with it  $3.7~{\rm x}~10^{10}$  disintegrations per second.

Decay Radioactive: Disintegration of the nucleus of an unstable element by the spontaneous emission of charged particles and/or photons.

Decay Constant: The fraction of the number of atoms of a radioactive isotope which decay in unit time. Symbol:  $\lambda$ .

\* All definitions are from the Radiologic Health Handbook.

Depth Dose: The radiation dose delivered at a particular depth beneath the surface of the body. It is usually expressed as a percentage of surface dose or as a percentage of air dose.

Direct Radiation: All radiation coming from one source, except the useful beam.

Dose (Dosage): According to current usage, the radiation delivered to a specified area or volume as to the whole body. Units for dose specification are roentgens for X- or gamma rays, reps or equivalent roentgens for beta rays. In radiology the dose may be specified in air, on the skin, or at some depth beneath the surface; no statement of dose is complete without specifications of location. The entire question of radiation dosage units is under consideration by the International Congress of Radiology. (See Rad).

Dose Rate (Dosage Rate): Radiation dose delivered per unit time.

Dosimeter: Instrument used to detect and measure an accumulated dosage of radiation; in common usage it is a pencil size ionization chamber with a built-in selfreading electrometer; used for personnel monitoring.

Electron Voll: A unit of energy equivalent to the amount of energy gained by an electron in passing through a potential difference of one volt. Larger multiple units of the electron volt are frequently used, viz: Kev, for thousand or kilo electron volts; Mev. for million electron volts B = Buildup factor in the shielding material

μ = Total absorption coefficient of the shielding material in cm<sup>-1</sup>.

X = Thickness of shielding material in cm. In utilizing such an equation as (2), one neglects the attenuation due to the air present between the subject and source. We will apply essentially this idea in designing of shields for personnel protection, in latter parts of this article.

Perhaps before one becomes involved in a situation of using either Co<sup>60</sup> or Cs<sup>137</sup> in a teletherapy unit, he should understand some of the basic characteristics of each of these isotopes.

First of all, we will look at the Co<sup>60</sup> isotope. This isotope is produced in nuclear reactors, by subjecting naturally occurring cobalt (Co<sup>50</sup>) to intense neutron bombardment. Naturally occurring Co<sup>50</sup> is not radioactive, but by adding a neutron to its nucleus, it becomes the highly radioactive Co<sup>60</sup>. This isotope has a half-life of 5.2 years and emits two gamma rays of 1.17 and 1.33 Mev. A close approximation of the dose rate delivered by Co<sup>60</sup> is

R = 1.35 x 104 Roentgens per hour at

a distance of 1 cm from 1 curie source of Co<sup>60</sup>

When considering the use of Cs127, one has a different source of radiation in that the half-life of the material is greater, but the radiation emitted per curie is not as large as for Co60. Cs137 is one of the fission products produced in the process of operating a nuclear reactor, and this is one of the primary reasons it serves as a good source for teletherapy units. Of course, the expense involved in this material, is in separating it from the many other materials produced in the reactor fuel elements. However, the supply is increasing steadily. Cs137 has a half-life of 30 years and results in the emission of a 0.662 Mev gamma ray. The radiation produced from a curie quantity of Cs137 is  $R = 0.39 \times 10^{3} \, r/hr$  at 1 cm.

#### SHIELDING

Now we would like to discuss the shielding necessary for personnel protection. In thinking about shielding, one is conscious of a statement made by Dr. K. Z. Morgan of the Oak Ridge National Laboratory, "radiation need not be feared, only appreciated." This is a good basic idea to keep in mind when thinking about the shielding of dangerous quantities of radioactive material.

There are many different materials used in shielding of radiation, but perhaps the more useful ones are earth, lead and concrete. Such materials as water, steel and marble can make suitable shields depending on the type of radiation and the architectural circumstances. A rough rule of thumb in comparing different materials is that  $\frac{3}{4}$  in. of lead,  $1\frac{1}{2}$  in. of steel,  $4\frac{1}{2}$  in. of concrete,  $7\frac{1}{2}$  in. of earth and  $10\frac{3}{2}$  in. of water are equivalent for shielding. In this paper, we will only explore the usefulness of concrete in the attenuation of radiation from sources of Co<sup>80</sup>.

Perhaps before going further, we should examine the process of attenuation of gamma rays in shielding material. Gamma rays are electromagnetic waves, highly energetic, and can result in heat development. Thus, gamma rays in passing through a material lose their energy by various processes, but basically all result in an increase in heat of the material. However, the heat generated is insignificant.

(Continued on page 220)

and Bev. for billion electron volts. Abbreviation: ev.

External Radiation: Exposure to ionizing radiation when the radiation source is located outside the body.

Film Badge: A pack of photographic film used for approximate measurement of radiation exposure for personnel monitoring purposes. The badge may contain two or three films of differing sensitivity, and it may contain a filter which shields part of the film from certain types of radiation. Gamma Ray: Short wavelength electromagnetic radiation of nuclear origin with a range of wave lengths from  $10^{-9}$  to  $10^{-12}$  cm, emitted from the nucleus.

Geiger-Mueller (G-M) Counter: Highly sensitive gas-filled radiation-measuring device which operates at voltages sufficiently high to produce avalanche ionization.

Health Physics: A term in common use for that branch of radiological science dealing with the protection of personnel from harmful effects of ionizing radiation.

Ionization Chamber: An instrument designed to measure quantity of ionizing radiation in terms of the charge of electricity associated with ions produced within a defined volume.

Ionizing Radiation: Any electromagnetic or particulate radiation capable of producing ions, directly or indirectly, in its passage through matter.

Isotope: One of several different nuclides having the same number of protons in

their nuclei, and hence having the same atomic number, but differing in the number of neutrons, and therefore in the mass number. Almost identical chemical properties exist between isotopes of a particular element.

Lead Equivalent: The thickness of lead affording the same reduction in radiation dose rate under specific conditions as the material in question.

Leakage (or Direct) Radiation: The radiation which escapes through the protecting shielding of an X-ray tube or teletherapy unit.

Linear Absorption Coefficient: A factor expressing the fraction of a beam of radiation absorbed in unit thickness of material. In the expression  $I = I_0 e^{-ux}$ ,  $I_0$  is the initial intensity, I the intensity after passage through a thickness of the material, x, u is the linear absorption coefficient.

Mass Absorption Coefficient: The linear absorption coefficient per cm divided by the density of the absorber in grams per cu cm. It is frequently expressed as u/p, where u is the linear absorption coefficient and p the absorber density.

Maximum Permissible Dose (MPD): The dose of ionizing radiation that, in the light of present knowledge, is not expected to cause detectable bodily injury to a person at any time during his lifetime.

Milliroentgen (mr): The submultiple of the

roentgen equal to one thousandth (1/1000) of a roentgen. (See Roentgen.)

Primary Protective Barriers: Barriers sufficient to reduce the useful beam to the permissible dose rate.

Protective Barriers: Barriers of radiationabsorbing material, such as lead, concrete and plaster, that are used to reduce radiation hazards.

Rad: The unit of absorbed dose, which is 100 ergs/g. The rad is a measure of the energy imparted to matter by ionizing particles per unit mass of irradiated material at the place of interest. It is a unit that was recommended and adopted by the International Commission on Radiological Units at the Seventh International Congress of Radiology, Copenhagen, July 1953.

Radiation: 1. The emission and propagation of energy through space or through a material medium in the form of waves; for instance, the emission and propagation of electromagnetic waves or of sound and elastic waves. 2. The term radiation, or radiant energy, when unqualified, usually refers to electromagnetic radiation, such radiation commonly is classified, according to frequency, as Hertzian, infrared, visible (light), ultraviolet, X-ray, and gamma ray. 3. By extension, corpuscular emissions, such as alpha and beta radiation, or rays of mixed or unknown type, as cosmic radiation.

Radiological Health: The art and science (Continued on page 220)

#### FUNDAMENTALS OF RADIATION PROTECTION

In designing shielding for radiation, one is concerned with two types of shielding, primary and secondary. Primary shielding is that needed to attenuate the direct radiation from the unit, and secondary shielding is that which is needed to attenuate the scattered radiation from the patient, primary barrier, etc.

What are the maximum values that we are "shooting" for in designing shielding?

According to a proposed revision of the National Bureau of Standards Handbook 59, "Permissible Dose from External Sources of Ionizing Radiation," for design purposes occupational exposures should not exceed 100 milliroentgens (mr) per week, and non-occupational exposures not over 10 milliroentgens per week. These are total body or critical organ exposures.

In this discussion we will allow the occupational exposure to be given over a work week of 48 hours.

In designing shielding for any teletherapy unit, there are many variables which one must consider. Such things as degree of occupancy, type of machine being considered, the source strength and actual running time of the machine will affect the amount of shielding necessary to give proper protection. Two basic equations for primary and secondary radiation that consider some of these variables are

$$B = \frac{(MPD)D^2}{WT} (3) \text{ and } B_s = \frac{(MPD)S^2}{0.001 \ WT} (4)$$
 Where,

B = permissible transmission for the primary beam

 $B_s$  = permissible transmission for the secondary beam (scattered radiation at angles equal to or greater than  $90^{\circ}$ )

MPD = maximum permissible weekly exposure for occupational or nonoccupational

D = distance from source to position in question

S = distance from scatterer to position in question

W = total weekly exposure for the primary beam at 1 meter from the source (obtained by multiplying the roentgens per hour at 1 meter by 48 hours of weekly operation)

T = the occupancy factor.

Graphs showing the permissible transmission values B and B<sub>n</sub> versus the thickness of concrete required for protection are given in Figures 1 and 2.

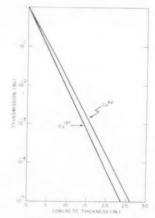


Figure 1

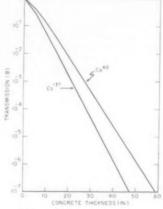


Figure 2

The curves shown above were extrapolated from National Bureau of Standards Handbook 54

#### GLOSSARY

of protecting human beings from injury by radiation.

Radiological Survey: Evaluation of the radiation hazards incident to the production, use or existence of radioactive materials or other sources of radiation under a specific set of conditions. Such evaluation customarily includes a physical survey of the disposition of materials and equipment, measurements or estimates of the levels of radiation that may be involved and a sufficient knowledge of processes using or affecting these materials to predict hazards resulting from expected or possible changes in materials or equipment.

Roentgen: The quantity of x- or gamma radiation such that the associated corpuscular emission per 0.001293 grams of air produces, in air, ions carrying 1 electrostatic unit of quantity of electricity of either sign.

Roentgen Equivalent Man (Rem): That quantity of any type ionizing radiation which when absorbed by man produces an effect equivalent to the absorption by man of one roentgen of x- or gammaradiation (400 KV).

Roentgen Equivalent Physical (Rep): The amount of ionizing radiation which will result in the absorption in tissue of 83 ergs per gram. (Recent authors have suggested the value 93 ergs per gram.)

Rotation Therapy: Radiation therapy during which either the patient is rotated before the source of radiation or the source is revolved around the patient's body. Scattered Radiation: Radiation which, during its passage through a substance, has been deviated in direction. It may also have been modified by an increase in wavelength. It is one form of secondary radiation.

Scattering: Change of direction of subatomic particle or photon as a result of a collision or interaction.

Scintillation Counter: The combination of phosphor photo-multiplier tube and associated circuits for counting light emissions produced in the phosphers.

Secondary Protective Barriers: Barriers sufficient to reduce the stray radiation to the permissible dose rate.

Secondary Radiation: Radiation originating as the result of absorption of other radiation in matter. It may be either electromagnetic or particulate in nature.

Stray Badiation: Radiation not serving any useful purpose. It includes direct radiation and secondary radiation from irradiated objects.

Teletherapy: A method of using a radioisotope as a radiation source in which the radioelement is shielded on all sides except one, thus giving a directional beam of radiation which is directed at the area to be treated.

Useful Beam (In radiology): That part of the primary radiation which passes through the aperture, cone, or other collimator.



#### PRECAST SECTIONS FORM MONOLITHIC CONCRETE "WHALE"

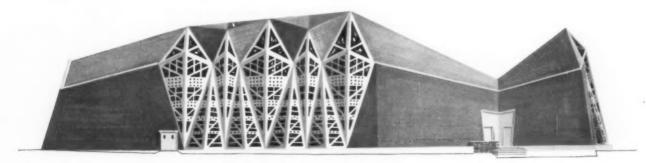
By TRANSLATING THE TIME-TESTED principle of the masonry arch and dome into a modern idiom, the designers of the new First Presbyterian Church in Stamford, Connecticut, have created a monolithic structure in which precast concrete panels serve dually as skeleton and skin, the mutually supporting walls and roof merging in a single integrated shell that is both structural and enclosing.

The church itself is 234 ft long and 54 ft wide at its widest point, with a nave seating 670. As can be seen in the illustrations on this page, the form bears a slightly more than coincidental resemblance to a fish — a shape which, apart from its Christian and biblical associations, produces a suitably soaring and

acoustically well-nigh perfect sanctuary space in the body of the whale. And the unique structural system further contributes to the quality of the interior space by freeing it of columns, beams, lintels or other visible supports.

A total of 152 members were used for the structure, all of them precast by assembly-line methods for maximum precision and quality control at minimum cost. Seventy-two of the elements are quadrilaterals cast in solid reinforced sections with a maximum size of 36 by 10 ft and a maximum weight of 10 tons. The others are triangles, some solid and some perforated, with a maximum length of 35 ft on the longest measure and a maximum weight of 5 tons. Each of the basic shapes to be cast was laid out on a plywood bed, and the forms constructed to precise measurements, with aluminum castings forming the lens openings in the perforated triangular sections. The reinforcing members were then carefully positioned, and the poured concrete vibrated for maximum density. To permit faster form re-use, a high early strength concrete was used in casting all members.

Once formed, the reinforced wall and roof sections were delivered to the building site by truck, and, beginning with the long triangular side wall sections, were hoisted into place by crane. As each panel was lowered into position on the concrete footing, it was bolted in













Assembly-line technique for precasting wall and roof sections for Stamford, Connecticut's First Presbyterian Church followed sequence shown at left. Forms were laid out on plywood beds, reinforcing positioned, the concrete placed and cured, and completed sections removed to allow re-use of forms. Panels were delivered to the site by truck and positioned by crane as shown above. Eight inch concrete seams join panels and foundation

place and an 8 in. concrete joint poured to make wall section and foundation continuous. Adjacent triangular sections were then lowered upside down into their inverted positions between the adjoining pairs of panels, and fastened to the footing in the same way. As construction proceeded, the solid triangular and quadrilateral sections were placed in a similar manner, their tops supported by falsework which remained in place until the roof panels had been lowered into position and the integrated wall and roof had become self-supporting. To assure a strong, rigid monolithic structure, 8 in. concrete joints were poured in place between all the panels.

The solid sections in both walls and roof are covered with slate shingles, while the perforated triangular panels used for the side and rear walls and the center section of the roof are left exposed. Light enters the interior of the church through one inch thick panes of colored glass set in the vari-shaped apertures of the exposed concrete sections. These panes of emerald, sapphire and amber glass were made in France—in the same town that 700 years ago supplied the glass for Chartres Cathedral—from templates of the panels in which they were to be placed.

Associated architects on the project were Harrison & Abramovitz of New York City, and Sherwood, Mills & Smith of Stamford; F. J. Samuely of London, England served as consulting engineer, and Edwards & Hjorth of New York City as structural engineers.

(More Roundup on page 234)

#### CERAMIC PANELS: OLD FACE, NEW FORM

THE WEDDING OF AN AGE-OLD Wall finish to a relatively new type of wall construction has produced a talented offspring whose inheritance includes many of the advantages of both. Ceramic tile has long been a familiar finish for both interior and exterior walls; curtain wall construction has in recent years proved its applicability to a wide range of building types. Now the color, texture and durability of tile and the structural advantages of the prefabricated, insulated curtain wall panel are combined in a single building product lightweight, low-cost RS Panels.

Four standard types are being offered, the most interesting of which, the Series 1500, is constructed of lightweight reinforced concrete cast monolithically with an insulating Styrofoam core and faced with Romany-Spartan frost-proof ceramic tile. The other three, Series 1600, 1700 and 1800, are sandwich-type panels with aluminum skins bonded to an insulating core. Core materials include Styrofoam for the 1600 series, Foamglas for the 1700 and an aluminum or impregnated paper honeycomb for the 1800. All three are finished in frost-proof tile applied to the exterior skin with a water-resistant, organic adhesive.

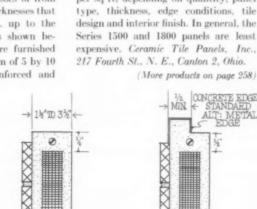
To permit their use in a wide variety of standard and specially designed curtain wall or window wall frames, the panels are made in thicknesses of from 13/8 to 33/4 in., with edge thicknesses that can be varied from 1/2 in. up to the overall panel thickness, as shown below. The regular panels are furnished in all sizes up to a maximum of 5 by 10 ft. However, specially reinforced and thicker Series 1500 panels can be made as large as 5 by 15 ft for use in slab construction

Although all of the panels are relatively light, their weights vary according to their thickness and construction. Lightest is the Series 1800 which weighs only 5.4 psf. when constructed with a 1 in. honevcomb: heaviest is the monolithic Series 1500 which weighs 9.3 psf. in the 334 in. panel thickness. The U factors vary according to the same criteria, ranging from a high of .28 for the 134 in. Series 1500 panel to a low of .08 for a Series 1600 panel with a 3 in. Styrofoam core.

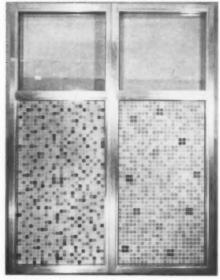
Tile finishes may be chosen from the full line of Romany-Spartan frost-proof tiles in 1 by 1, 1 by 2 and 2 by 2 in. sizes and over sixty colors, including bright and matte glazed finishes and natural clay and porcelain unglazed finishes. If desired, the panels can be faced on both sides with ceramic tile or the interior surface can be painted.

The tile on all RS Panels is grouted with a weatherproof, flexible latex grout which was chosen on the basis of cyclic weathering and differential temperature tests conducted at Pennsylvania State University. Dark gray grout is standard, but white or other colors will be used where specified.

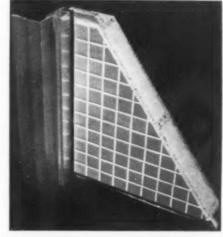
Panel costs range from \$2.75 to \$4.50 per sq ft, depending on quantity, panel type, thickness, edge conditions, tile design and interior finish. In general, the Series 1500 and 1800 panels are least expensive. Ceramic Tile Panels, Inc.,

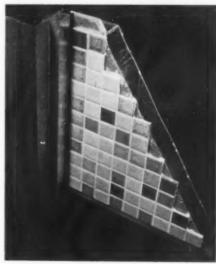


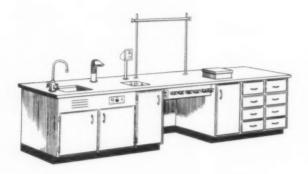
Alternate edge conditions Series 1500 (also applicable to 1600, 1700, 1800 Series panels)



Insulated panels in basic types shown below combine appearance and permanence of ceramic tile finish with structural advantages of curtain wall construction







#### EDUCATIONAL SCIENCE EQUIPMENT

Catalog No. SUL-57 introduces *UNIT-LAB* educational science equipment, a versatile series of modular units designed to meet the specific requirements of every type and size of educational laboratory. Sketches, dimensions and brief descriptions of the full line of basic equipment, including demonstration tables, student work tables, storage units, sink units, fume hoods, and a variety of fittings and accessories, are presented on 16 double-size pages. *Laboratory Furniture Co., Inc., Old Country Rd., Mineola, L. I., N. Y.* 

#### High Early Strength Portland Cement

Presents detailed information, test reports, comparative strength diagrams and other engineering data on C.B.R. III, a new Belgian high early strength portland cement. 12 pp. Indussa Corp., 511 Fifth Ave., New York 17, N. Y.

#### Fota-Lite (A.I.A. 31-F-237)

Bulletin L-110-F.G. presents product data, photometric data and calculations for Fota-Lite louvered glass lighting panels. Lighting Sales Dept., Corning Glass Works, Corning, N. Y.\*

#### Stationary Diesels

Bulletin 111 gives construction features, performance curves, specifications and typical applications for *Model 65 Superior* stationary diesels. 8 pp. *Adv. Mgr.*, *White Diesel Engine Div.*, *Springfield*, *Ohio* 

#### Lightsteel for School Construction

(A.I.A. 13-G) Three sets of plans, in perspective, show typical classroom arrangements and illustrate uses of light steel structural sections in school construction. Details are shown in enlarged sections. 22 pp. Penn Metal Co., Inc., 40 Central St., Boston 9, Mass.\*

#### Contemporary Furniture Catalog

Photos and drawings illustrate complete line of light-scaled contemporary office furniture. Catalog #20 also details wood finishes and formica colors, legs and bases, and hardware available for the various modular components. 24 pp. Robert John Co., 202 S. Hutchinson St., Philadelphia 7, Pa.

#### **Guide Specifications**

. . . for Typical Low-Pressure Commercial Heating Plant (A.I.A. 30-A) covers recommended specifications for coal-fired heating plants over a range of 3000 to 24,000 EDR (steam) or ¾ to 5½ million Btuh. 53 pp., 5 drawings. Bituminous Coal Institute, 802 Southern Bldg., Washington 5, D. C.

#### Convertible Wood Windows

(A.I.A. 16-L.) Catalog D-57 gives selection data, installation and framing details, and specifications for Series D convertible wood awning windows. 6 pp. Modernaire Corp., 8400 Kinsman Rd., Cleveland 4, Ohio.

#### Varsity Pre-Cast Seats

Describes and illustrates typical installations of Varsily precast tread and riser seating units. Section drawings and specifications are also included. 8 pp. Varsily Pre-Cast Seat Co., P. O. Box 5154, Oklahoma Cily, Okla.

#### Walkerduct Systems (A.I.A. 31-C-62)

Catalog 354-P describes and illustrates Walker underfloor electrical distribution systems for concrete, steel deck, wood and radiant heated floors. 56 pp. Adv. Mgr., Walker Bros., Conshohocken, Pa.\*

#### **Basic Safety Controls**

... for Low Pressure Steam Boilers gives "why" and "how" of safety and automatic water level controls for low pressure steam boilers in closed heating and multiple boiler systems. 24 pp. Mc-Donnell & Miller, Inc., 3500 N. Spaulding Ave., Chicago 18, Ill.\*

#### Wallites (A.I.A. 31-F-2)

Includes descriptions, specifications and installation drawings for Wallite line of wall-mounted lighting fixtures. 4 pp. Gotham Lighting Crop., 37-01 31st St., Long Island City, N. Y.

#### Engineered Lighting Surface Series

(A.I.A. 31-F-2) Engineering folio S-58 includes specifications, cross-sectional construction drawings, candlepower distribution curves and coefficients of utilization for a wide line of shielded fluorescent units. 16 pp. *Gruber Brothers*, *Inc.*, 125 S. First St., Brooklyn 11, N. Y.

#### Stainless Steels

Offers descriptions, chemical composition, strength factors, physical properties and typical applications for a wide range of stainless steels, including the 200, 300 and 400 series. 32 pp. Adv. Dept., Sharon Steel Corp., Sharon, Pa.

#### Safway Spectator Seating

(A.I.A. 35-F-11) Describes complete line of Safway telescoping gym seats, with illustrations, detail drawings, selection data and specifications. 16 pp. Safway Steel Products, Inc., West 63rd St., Milwaukee 13, Wise.\*

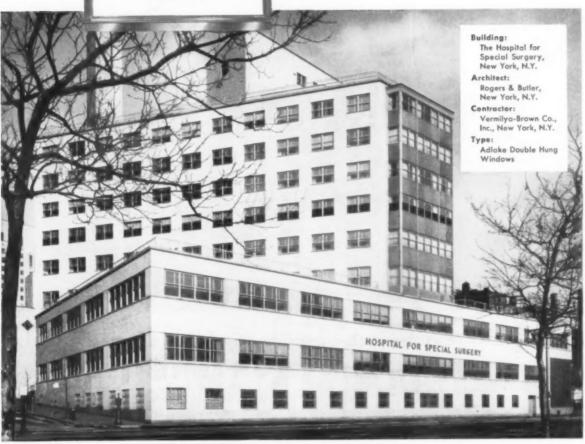
#### Commercial Boilers

Twelve page catalog includes diagrams, descriptive literature, capacities and dimensions for complete line of large-size commercial boilers. Porlmar Boiler Co., Inc., 193 Seventh St., Brooklyn 15, N. Y. Other product information in Sweet's Architectural File, 1957.

(More Literature on page 300)

Adlake ...again!

**America's Finest Aluminum** Windows





#### Only Adlake combines these 6 basic advantages:

- · No warp, no rot
- Minimum air infiltration
- . No painting, no maintenance
- · Finger tip control
- · No rattle, stick or swell
- Guaranteed non-metallic weather stripping

Also, Double-hung Windows with Patented Serrated Guides

THE Adams & Westlake COMPANY, Elkhart, Indiana



# K&M asbestos-cement structural sheets DEFY 5-POINT TORTURE TEST

Right from our production lines, we took K&M Structural Sheets and subjected them to the toughest lab tests we could conjure up, to show that this is the ideal partitioning material for industrial, commercial, institutional, and residential construction.

K&M Structural Sheets came through these five murderous tests without failing: 1. Fire; 2. Corrosion; 3. Mildew and rot; 4. Vermin and rodents; 5. Repeated washings with harsh solutions...proving their value as a basic material of construction where the going's rough.

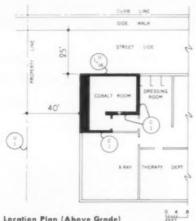
There are two grades of K&M Structural Sheets— Apac and Linabestos; Apac is for use when initial cost is the first consideration. Both go on fast in big sheets, can be cut and drilled on the job, fastened to studding or other members by unskilled labor. They never need protective paint, but take paint beautifully. You can specify K&M Asbestos-Cement Structural Sheets with confidence. Write for complete information.



KEASBEY & MATTISON Company · Ambler · Pennsylvania

#### ROOM FOR COBALT 60 FACILITIES: 1 - Fixed Beam Unit\*

By U. S. Department of Health, Education and Welfare-Public Health Service

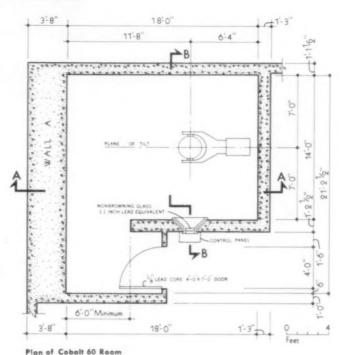


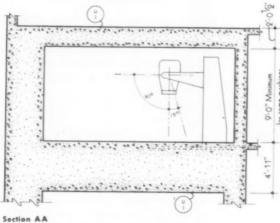
Location Plan (Above Grade)

SYMBOLS

- Full Occupancy Controlled
- Full Occupancy Uncontrolled
- Partial Occupancy Uncontrolled
- Occasional Occupancy Uncontrolled

For "Design Requirements" see Sheet 2





some Section BB

A by 3 in.; for a 500 curie source, a reduction of 5 in. more. Since greatest cost is in forming, such savings are relatively small.

In new construction, the cost of concrete shielding will, in most cases, be a small part of the total cost of the installation.

To illustrate the maximum required shielding for floor and ceiling, the thicknesses shown

have been computed for locations with fulltime uncontrolled occupancy above and below. With controlled occupancy less shielding would be necessary and with no occupancy, these slabs could be reduced to the minimum structural requirements. An underground location is the only way, short of limiting the machine, of reducing the thickness of exterior walls.

The shielding indicated on the accompanying plans was computed on a basis of a 5,000 curie source. Because of its high cost, it is not now commonly used. Reduction of the source, however, does not decrease the shielding requirements significantly. For example, in the plan, use of a 2,000 curie source would result in a reduction of the thickness of wall

\*With Primary Beam Restricted to Floor and One Wall

# New Jamison FROST OP has Adjustable Temperature Control

to prevent icing and freezing shut of cold storage doors



The new Jamison Frostop with adjustable temperature control is now available on Jamison Cold Storage Doors of many types and practically all sizes.

...thermoswitch-controlled temperature range eliminates dangers of overheating or condensation of moisture due to unauthorized shut off.



120° — above 120° excessive temperature damages frame and gaskets.

60°—below 60° condensation will form in cable channels on frame and sill areas.

Adjustable Frostop thermoswitch permits selection of any temperature between 60° and 120°.

#### BUILT IN SAFETY RANGE

With the new Jamison Thermoswitch Control, Frostop cannot be turned off at the unit, nor can heat be elevated beyond safe limits. Practical temperature range is from 60°F. to 120°F., which prevents moisture condensation or excessive heat.

Other approved features include Gasketed Control Box—water tight and drip proof; and Silicone-Glass Cable Insulation to give cable moisture and heat resistance and extra long life.

Specify Jamison's new Frostop for completely safe control of icing and freezing of doors. Write for new Frostop Bulletin. Jamison Cold Storage Door Co., Hagerstown, Md., U.S.A.

More JAMISON Doors are used by more people than any other Cold Storage Door in the world.

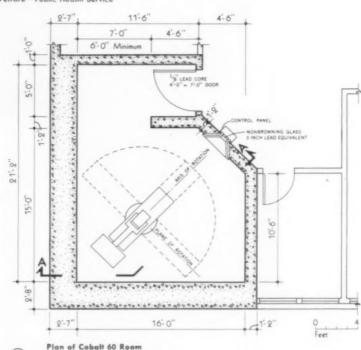
JAMISON COLD STORAGE DOORS

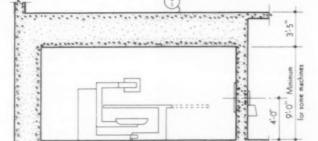
#### ROOM FOR COBALT 60 FACILITIES: 2 - Rotational Unit with Primary Beam Absorber

By U. S. Department of Health, Education and Welfare-Public Health Service



Location Plan (Above Grade)





Section AA

#### SYMBOLS

- Full Occupancy Controlled
- Full Occupancy Uncontrolled
  - Partial Occupancy Uncontrolled
- Occasional Occupancy Uncontrolled

#### DESIGN REQUIREMENTS

Controlled Area 
$$MPD = 5.0 \text{ Rem} = 5.0 \text{ Rem} = 100 \text{ MRem}$$

Full Occupancy T = 1

Control space, residences, play areas, wards, office work rooms, darkrooms, corridors and waiting space large enough to hold desks and rest rooms used by radiologic staff and others routinely exposed to radiation.

Partial Occupancy  $T = \frac{1}{4}$ 

Corridors in X-ray departments too narrow for future desk space, rest rooms not used by radiologic personnel, parking lots, utility

Occasional Occupancy

Stairways, automatic elevators, streets, closets too small for future workrooms, toilets not used by radiologic personnel.

Source 5000 Curies

# PLU

# KOHLER PLUMBING FIXTURES

# installed throughout the new

# MILWAUKEE Y.M.C.A.

Among the many large scale institutions which have chosen Kohler plumbing fixtures and fittings for quality, appearance and serviceability, is Milwaukee's new \$6,200,000,18-story Y.M.C.A.—outstanding in modern structural design, appointments and equipment.

More than a thousand Kohler fixtures with chromium-plated all-brass fittings were used. The Juneau vitreous china lavatories were selected for residence rooms and washrooms. The Juneau has special mounting features and extra wall-bearing surface that insure rugged stability without the need for additional support.

Completing the all-Kohler installation are Swift, Sifton and Stratton closets, Branham urinals, Rinse dental lavatories—all of vitreous china—and over 300 showers.



Juneau lavatories, Rinse dental lavatory KOHLER CO. Established 1873 KOHLER, WIS.

KOHLER OF KOHLER

PLUMBING FIXTURES . HEATING EQUIPMENT . ELECTRIC PLANTS
AIR-COOLED ENGINES . PRECISION CONTROLS

#### ROOM FOR COBALT 60 FACILITIES: 3 - Rotational Unit without Primary Beam Absorber

By U. S. Department of Health, Education and Welfare-Public Health Service



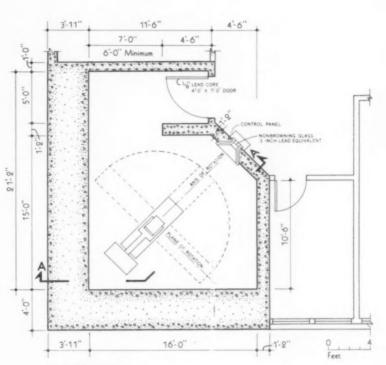
Location Plan (Above Grade)



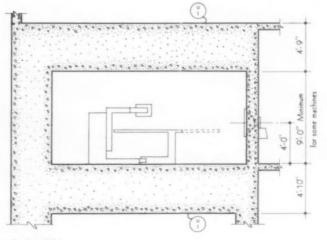
- C Full Occupancy Controlled
- Full Occupancy Uncontrolled
- Partial Occupancy Uncontrolled
- Occasional Occupancy Uncontrolled

For "Design Requirements" see Sheet 2

A primary beam absorber on a machine reduces the shielding requirements considerably. However, some radiologists prefer to use a machine without the absorber, because of its greater flexibility, and for this reason some machines are designed to be used with or without the absorber. Under these conditions the room shielding should be designed for use either way. The plan and section shown here illustrate the necessary shielding.



Plan of Cabalt 60 Room



Section AA

# BANK ... LIBRARY ...



PRACTICAL STYLING

The choice of Armstrong Rubber Tile for the floor of this bank was made for its durability as well as for its rich appearance. The striking "zebra stripe" design gives a "furnished" look to an otherwise open floor area. Adding to the effectiveness of the design is the coving of the flooring up the counter fronts — a smart decorating idea that also is an aid to cleaning.

The Commercial Bank of Salem, Oregon

architect: Bank Building Corporation, St. Louis, Missouri

## INTERIOR DESIGNERS' OFFICE . . .

the flooring spec: Armstrong Rubber Tile

#### QUIETNESS

Its exceptional resiliency makes Armstrong Rubber Tile one of the quietest floors to walk on, a natural choice for a library. Footsteps, chairs moving, things dropped don't disturb readers. In the children's reading room, shown here, Armstrong Rubber Tile withstands constant scuffing without permanent marks and indentations.

Maplewood Memorial Library, Maplewood, New Jersey architect: Ray O. Peck, A.I.A. and Karl S. White, A.I.A., Associates





#### DECORATIVE BEAUTY

A modern custom floor is superbly achieved in this designers' office. The crystal-clear colorings of Armstrong Rubber Tile add elegance. Ecru and beige tiles, installed in a handsome fret design, make the office seem more spacious.

Interior Design Office, New York, New York designers: Kim Hoffmann, A.I.D. and Stephen Heidrich, A.I.D.

Armstrong Rubber Tile is widely recognized for its clear brilliance of color and handsome graining — an ideal floor for the finest interiors. Mechanical reinforcement in its manufacture prevents shrinkage and expansion; chemical reinforcement assures exceptional resistance to grease, oil, and solvents. Inexpensive to maintain, Armstrong Rubber Tile withstands static loads up to 200 lbs. per sq. in. It is available in a wide range of colors in %" and %e" gauges; in 6" x 6", 9" x 9", 12" x 12", and 18" x 36" sizes. Armstrong Rubber Tile can be installed over any suspended subfloor and even below grade and on grade with specified Armstrong adhesives.

Because Armstrong makes all types of resilient floors, unbiased recommendations can be made for every flooring need. For help on any flooring problems, call the Architectural-Builder

Consultant in your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, 111 Rock Street, Lancaster, Pennsylvania.



# Armstrong FLOORS

Approximate Installed Prices per Sq. Ft. (Over concrete, minimum area 1000 sq. ft.)

20¢
10
35¢

Decoray ®
Linoleum Tile
Asphalt Tile,
1/8" (A, B, C, D)
Linoleum,
1ight gauge
Asphalt Tile,
3/16" (A, B)

35¢ to 45¢ Linoleum, standard gauge Asphalt Tile, 3/16" (C, D) Linoleum, Va" ("Battleship") Greaseproof Asphalt Tile Cork Tile, 3/32"

45¢

Corlon®
(Sheet Vinyl)
Linoleum, ½"
Cork Tile, ½"
Excelon® Tile
(Vinyl-Asbesto:
½"

60¢

Rubber Tile, 1/6"
Cork Tile, 3/16"
Linotile®
Corlon
(Hydrocord®
Back)
Linoleum

(Cushion-Eze®) Back\*\*) 70¢

Custom Corlon Tile (Homogeneous Vinyl) 3/32", 1/8" Cork Tile, 5/16' Rubber Tile, 3/16" Corlon

95¢ 10 \$1.30

Custom Vinyl Cork Tile Imperial® Custom Corlon Tile

\*\*PATENT PENDING



Heats the "Living Zone"

#### "A heater in winter - a fan in summer"

- heat-speed efficiency greater than any other heater
- new ease of installation
- the ultimate in room-by-room thermostatic heat control
- new motor location in cold-air
- flush-to-wall installation projects less than 1 inch
- new type turbo-fan, quietest ever
- cleaner, safer, healthier-no soot -no flame-no fumes
- · new heating element provides instant silent heat
- heat discharged at floor levelcirculates thru "Living Zone"
- new Spanish Gold baked enamel finish blends with room interiors

#### A THERMADOR HEATER FOR EVERY ROOM

Remember, when Thermador is specified, installation is easier, profits are bigger, and customer satisfaction is greater.











PORTABLE ROOM HEATERS

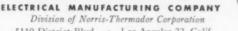


BILT-IN ROOM HEATERS

The Originator of the Fan-Type Electric Heater

### HERMADOR

Division of Norris-Thermador Corporation



5119 District Blvd. • Los Angeles 22, Calif. Thermador Electrical Manufacturing Company 5119 District Blvd., Los Angeles 22, Calif. ☐ Architect ☐ Electrical Contractor Dept. AR-11-57. Builder Wholesaler Dealer Other. Address

#### TECHNICAL ROUNDUP

(Continued from page 222)

#### NEW USE OF PRESTRESSED CONCRETE PARES WALL COSTS



With the help of a little-used application of prestressed concrete, the recently completed St. Vitus School Auditorium in Cleveland, Ohio, shed 3 ft of its perimeter wall - and a correspondingly large chunk of wall construction costs.

Of four alternate schemes studied, a roof system of prestressed girders with a precast concrete roof deck proved most desirable from the standpoints of cost and appearance, and offered the added advantage of fireproof construction. To save expensive wall construction around the perimeter of the building, the beams were upset above the roof deck even though the top flange was then left unsupported. The design concept involved - that of built-in stability under final design loads for prestressed concrete beams with an unsupported compression flange - is one that has been given little study, and no test data was available. The analysis was therefore confined to the stability of the beam web under bending action of a flat plate, and corroborated by a field test of one of the beams after it was in place but before the roof slabs were connected to it. As shown above, a test load of twice the design load was applied as a single concentrated load in a way that simulated the actual condition of a laterally unsupported compression flange. After this loading had been maintained for 24 hours, the maximum deflection was 0.67 in., with a recovery of 100 per cent.

Architects for the project were John F. Lipaj & Associates; structural engineering was by R. M. Gensert & Associates, with Dr. John B. Scalzi of Case Institute of Technology collaborating on the design of the beam.

(More Roundup on page 238)

12-veneer offers opportunities for unusual and dramatic concepts in design and decoration wherever interior tile are used. This 11 1/8 x 11 1/8 x 3/8 tile is available in 20 decorator colors including the six shown at left.

> GLAZED QUARRY TILE

Frostproof tile . . . perfect for store fronts, swimming pools, feature walls and decorative inserts . . . 20 decorator colors. Sizes: 21/4 x 8 x 34, 6 x 6 x 1/2, 6x6x34,3%x8x34, 3% x 12 x 34 and matching trim units.

#### QUARRY

#### TILE

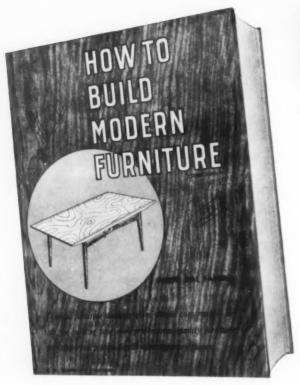
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#### TECHNICAL ROUNDUP

#### WALLS AND ROOF DECK QUILTED FOR STRENGTH. INSULATION

In designing several structures — including a residence, a motel dining room and fifteen summer cottages — architect Francis J. Niven of Houston, Texas, has employed a unique structural system in which sandwich type quilted concrete slabs are used for both walls and roof deck.

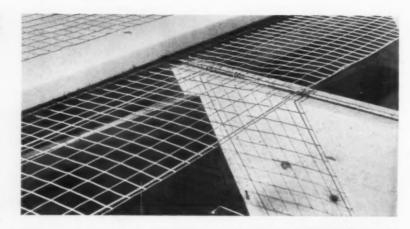
For supports located not more than 6 ft on center, Mr. Niven recommends 4 in. slabs made up of a 2 in. insulating core of Styrofoam faced on both sides by a 1 in. layer of concrete blown-on over 2 by 2 in. 14 ga. galvanized wire mesh. Thicker slabs are necessary for wider spans, although the thickness may be reduced by the use of troweled-on oxychloride cement, a 3/8 in. layer of which approximates the strength of a 1 in. layer of concrete, Because their strength increases as they approach a complete envelope around a structure, the slabs are continuous around building walls and over supports.

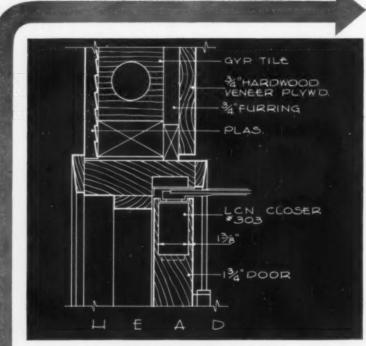
Primary among the advantages cited for this new building method is the speed of construction. Mr. Tom Notestine, who was associated with Niven's firm on the design of the cottages, believes that perfection of the construction technique will make it possible to erect similar structures in only three days' time.





(More Roundup on page 242)





#### CONSTRUCTION DETAILS

for LCN Closer Concealed-in-Door Shown on Opposite Page

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- 4. Closer is simple to install and to adjust
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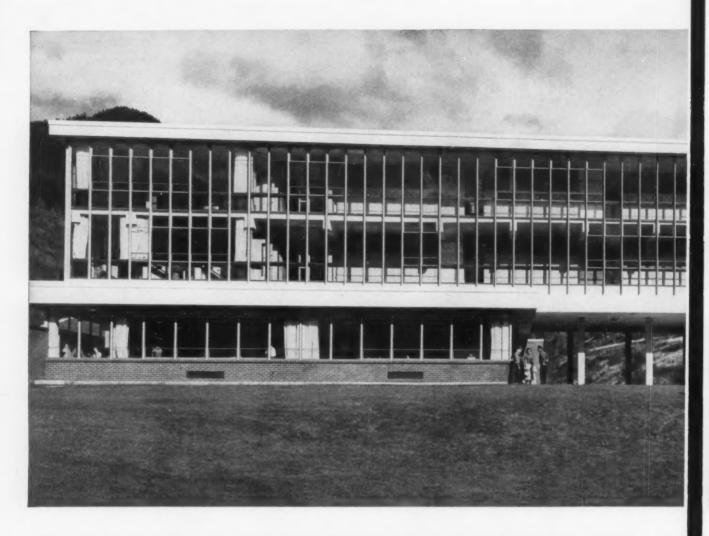
Canada: Lift Lock Hardware Industries, Ltd., Peterborough, Ontario



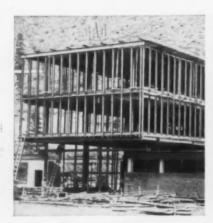
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Fast, clean installation. Lupton Metal Windows are delivered ready for immediate placement. With mullions in place, workmen put up Lupton window sections from within building—fast, inexpensively.



Adjustable ventilation. Projected in at bottom or out at top, these Lupton Windows provide immediate controlled ventilation with maximum light, are tight-fitting and rattle-free.



KELLOGG HIGH SCHOOL, Kellogg, Idaho, Architects: Culler, Gale, Martell & Norrie, Spokane, Wash.; Perkins & Will, Chicago, III. Contractor; Johnson-Busboom-Rauh, Spokane, Wash. Photograph by Hedrick-Biessing,

# **LUPTON METAL WINDOWS**

#### bring maximum light and air to Kellogg High School

With this ultra-modern consolidation school the community of Kellogg, Idaho, voices its pride and civic-mindedness. Thanks to these walls of LUPTON engineered metal windows, bountiful ventilation and light are made available throughout the building.

Working together with school authorities to typify community solidarity, the architects conceived this building design which embodies a continuous wall of windows. Bright yellow-painted steel mullions and red muntins provide a joyful frame to the impressive view through the 513 LUPTON Steel Architectural Projected Windows.

Certain extreme climatic conditions (wind and dust storms; smoke from nearby Bunker Hill smelter; a wide variance in atmospheric temperatures) made the selection of materials unusually important. Ruggedness and simplicity characterize the construction, and are epitomized in the modern, precisely-engineered walls of tight-fitting LUPTON Windows.

The Kellogg High School project reflects a growing

movement towards the use of entire walls comprised of LUPTON Windows in schools, hospitals, and other modern buildings. LUPTON's 75 years' experience in metal-window and curtain-wall manufacture merits your complete investigation—look first in the Architectural File (Sweet's) for the Michael Flynn Catalog, and then consult the Yellow Pages under "Windows—Metal." Or write for specific additional information on LUPTON Metal Windows and Aluminum Curtain-Wall Systems.

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CONGRATULATIONS, AIA! Michael Flynn Manufacturing Company joins the other members of the Producers' Council in extending best wishes on the occasion of your 100th anniversary celebration May 14-17.



#### INFRA-RED HEATING FOR THE "FACTORY OF THE FUTURE"

As high-bay buildings have grown in size and complexity of heating requirements, industry's need for an economical method of heating them has grown accordingly. Most promising of the techniques tried heretofore has been radiant heating - either by panel heating from floor or walls, or by infra-red heating from above. Although the latter system eliminates the expensive tubing needed for panel heating, infra-red generators themselves have been relatively inefficient, principally because their low operating temperatures did not produce infra-red of sufficient intensity. In addition, since typical units have utilized a standard gas burner to heat the infra-red emitter, an intermediate step in the heat-transfer process has further reduced their efficiency. Now, however, a radically new approach to generator design promises a solution to the problem.

Based on a technique developed by German scientist Guenther Schwank. and made in this country by Perfection Industries, a division of the Hupp Corporation of Cleveland, Ohio, the new units differ markedly from previous gas infra-red generators in that the structure which supports combustion is also the infra-red emitter. Higher operating temperatures (1650 degrees F) are achieved in the Schwank generator by combustion of gas on the surface of a perforated ceramic mat through which an air-gas mixture feeds. The gas is metered through an orifice, and passes through an air aspirating chamber and mixing tube to a distributing chamber under the ceramic unit. Because the gas is converted to infra-red energy in the wave lengths readily absorbed by most common materials, generators employing the Schwank technique are considered the most efficient and economical known today. In U. S.-designed generators, multiples of an eight-ceramic combination called a "rayhead" are grouped in an aluminum reflector which helps direct infra-red toward the surfaces to be heated. Although direct comparison with conventional space heaters is difficult, it is estimated that the gas-fired infrared heating system can reduce heating costs by from 20 to 50 per cent. Under normal conditions, the units have unlimited life expectancy and maintenance requirements are almost nil.

(More Roundup on page 246)



Ridge. This beautiful floor provides quiet comfort underfoot and outstanding wear resistance.

# Telephone Company uses Gold Seal 1/8" Sequin inlaid linoleum in its new office in Glen Ridge, N. J.

Any busy telephone office needs a long-wearing floor that's. easy and inexpensive to maintain. New Jersey Bell Telephone Company has installed Gold Seal 1/4" "Sequin" Inlaid Linoleum.

"Sequin" gives your busiest industrial or institutional clients modern, textured floor beauty plus the traditionally low maintenance of Gold Seal Inlaid Linoleum. Stains, grease, grime wipe easily away. And tough, resilient "Sequin" provides quiet comfort underfoot . . . resists indentation . . . defies years of punishing traffic.

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featuring the SCULPTURED LOOK ...



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**B4012**—MERCURY drinking fountain with glass filler. Semi-recessed, wall hung.



B3461—MILTON: 24" x 20" lavatory with back, 8" centers. For concealed carrier.



B6960—SANITON: Syphon jet women's urinal with floor outlet, top spud.



**B6706**—CARLTON: Syphon jet floor outlet bowl with top spud.



B6911—LAWTON: Wall hung washout urinal with extended shields, top spud.

#### A complete new line of vitreous china fixtures for commercial, industrial and school use!

Briggs Beautyware—famous for quality plumbing fixtures for residential use—now moves into the industrial, commercial and school field with a complete new line of vitreous china plumbing fixtures. Designed by Harley Earl, Inc., they feature a sculptured look that's as contemporary as today's

architecture! And, there's a size and type of fixture to meet nearly every commercial and industrial requirement—from lavatories to service sinks, from men's and women's urinals to drinking fountains. Shown above are representative models. Write today for complete specifications on the entire line.

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T-8722. Combination 4" centerset lavatory fitting with spray spout and strainer waste.



T-8401. Trip lever drain with 11/2" tailpiece. (overflow plate and drain plate illustrated).

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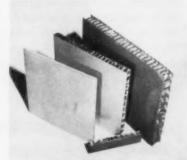
#### TECHNICAL ROUNDUP

#### PORCELAINIZED ALUMINIZED STEELS: A NEW DESIGN TOOL

While porcelain enamel has been commercially applied to ferrous metals or copper and its alloys for over 100 years, the use of porcelain enamel on aluminum and light metal alloys has been developing only within the last decade. It was early found that porcelain enameled aluminum may be cut, sawed, sheared, drilled or punched without visible damage or raw metal edges, and that the extremely thin coating applied not only reduces the cost but improves such properties as impact, thermal shock and torsion resistance. In addition, an inherent characteristic of the group of low melting glasses suitable for coating aluminum alloys is that, when damaged, the enamel leaves the surface in powder form rather than in splinters as is the case with conventional steel enamel

However, a drawback of enameled aluminum for some applications has been the lower tensile strength of the aluminum itself, although it has been claimed that the enamel layer increases the metal's tensile strength by about 50 per cent. In order to combine the greater rigidity of steel with the many desirable properties of the aluminum enamels. Dr. Paul A. Huppert, director of the Ceramic Coatings Department of Gulton Industries, Inc., Metuchen, New Jersey, undertook an investigation of the practicability of porcelainizing aluminized steel by a new process based on the mill addition of specially prepared lithium compounds to commercial frits.

The first practical development to emerge from this study was an artificial ceramic coated chalkboard with a predicted finish life of 72 years. Production experience on this item led to the development of three novel materials of particular interest to the building industry. These are the plain, corrugated and



(Continued on page 250)

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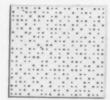
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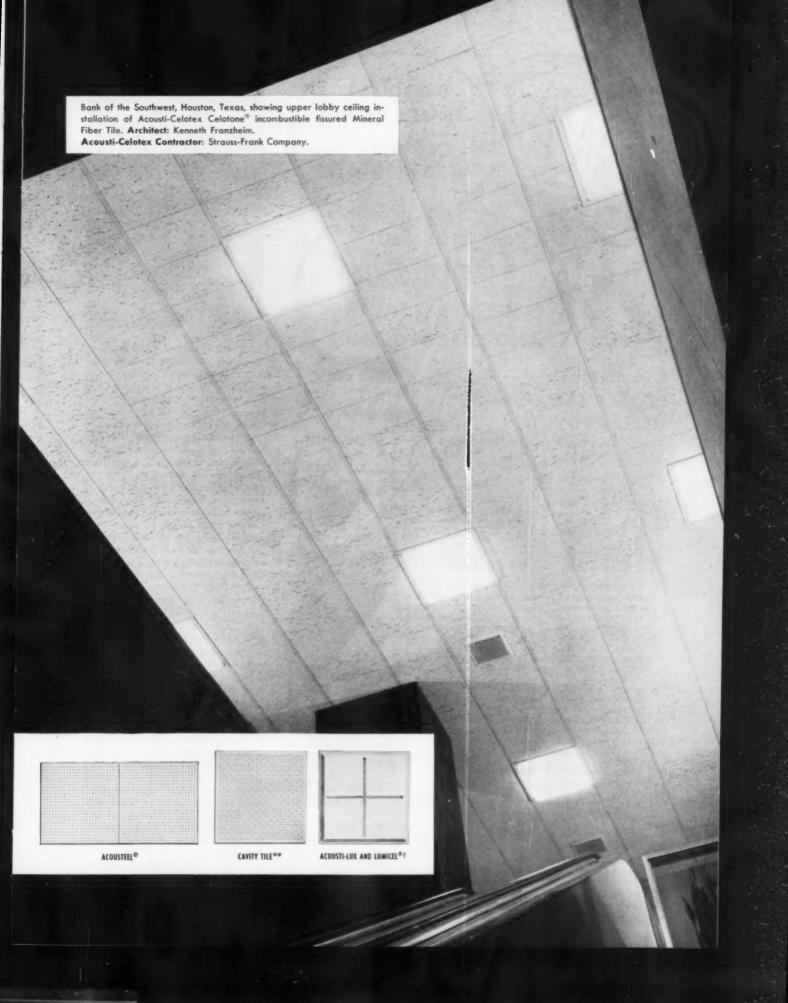
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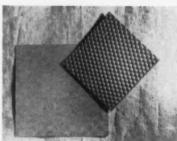
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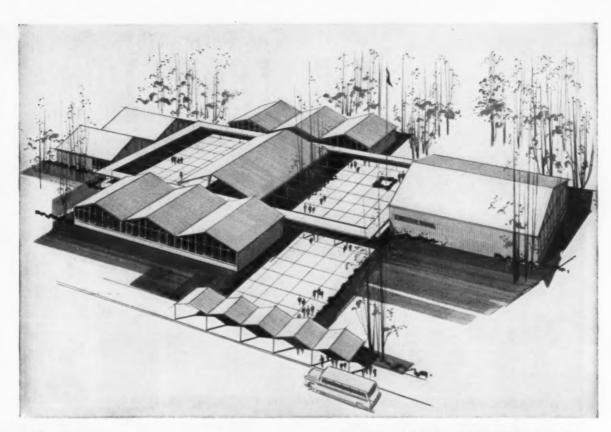
rigidized porcelain enameled sheets shown above and on the preceding page. All three are based on aluminized steel and require the type of porcelain enamel that may be applied to light metal alloys—and all three incorporate the inherent advantages of the aluminum enamels.

It was found initially that, while 16 and 18 gage metals must be used for architectural application of porcelain enamel on steel or enameling iron, the base metal for aluminized steel need not be heavier than 0.0265 in., with a resultant weight saving of from one to one and a half pounds per square foot. Although all types of surface finishes are available, the investigations emphasized the medium glossy and semi-matte finishes preferred by the architectural enamel trade. The weather resistance of the finishes was determined by the standard testing method of the Porcelain Enamel Institute. It was found that, while class B is generally acceptable for steel enamels, aluminum enamels can be developed which, depending on color, are in class A or even class AA. As far as the adherence of the coating to the base metal is concerned, all enamels applied to aluminized steel have successfully passed the general requirement of the accelerated spalling test which consists of withstanding a 5 per cent aqueous solution of ammonium chloride for a minimum of 96 hours at room temperature. The porcelain enameled aluminized steel may be cut or drilled without danger of edge corrosion, and may also be postformed by various methods, provided no bends of too sharp radii are applied.

(More Roundup on page 254)

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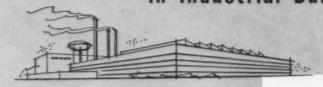
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Catalog 150 (A.I.A. file 29e2) contains full details in simplest form, includ-ing standard "copyable" specifications. Write for your copy now.

## Architects, Engineers and Contractors prefer ALLENCO



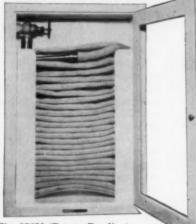


Fig. 278N (Patent Pending) Fig. 278N (Patent Pending)
FIRST practical cabinet for cotton
rubber-lined hose. Wall recessed, saves space;
fully enclosed, resists attack by fumes, dust,
etc. Cradles hose in soft folds, ready for instant
use. Several models, sizes and hose-lengths.



Fig. 7153 (listed and approved by Associated Factory Mutual Insurance Companies) — UNIQUE form of major fire hose cabinet, ideal for smaller structures. Steel cabinet no bigger than phonograph record album holds 30-40-50-75 feet of fire type hose. Recessed or wall hung.

## Of the many distinct ALLENCO products and models, these are most widely specified and installed in the industrial field



Fig. 145 (UL and FM listed and approved)—Ryerson swinging hose reel with wall brackets or pipe clamps. Holds 50-100-150 feet of cotton rubber-lined hose out of way, yet swings and feeds instantly. To suit type, size and length of hose required.



Fig. 7170 (Patent Pending)—"Hozegard" reel combines protection with fastest way to get full pressure at nozzle in use. Best for linen or light-weight CRL hose, 50-75-100 feet in length, up to 1½ size. Adds years to hose life, fights fire faster.



ALLENCO W. D. ALLEN

Rm. 700 Allenco Bldg. 566 W. Lake St. Chicago 6





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QUIET! . TROUBLE-FREE! . DEPENDABLE! . HEAVY DUTY! . GUARANTEED!

Versatility in size, application, and engineering has always been a Peerless strong point. Peerless builds its own motors and matches them to the specified blower requirements. Peerless blower frames and housings are usually heavier than any competitive products. Result—a quiet, vibration-free unit.

These are not "off-the-shelf" units, but built to customer rotation and discharge specifications. Each one receives 100% inspection before it leaves the Peerless factory. Each unit is built to NAFM standards. Motors are built to NEMA standards. Each unit is ready for operation when received at the installation site.

Write Today for Bulletins SDA-220, SDA-200 and SDA-160

Charter Member of the Air Moving and Conditioning Association, Inc.

FAN AND BLOWER DIVISION



THE Peerless Electric COMPANY

FANS . BLOWERS . MOTORS . ELECTRONIC EQUIPMENT

See Our Catalog in Sweets

## TECHNICAL ROUNDUP

### TWIN HYPERBOLIC PARABOLOIDS ROOF KANSAS RESIDENCE

Shortly after the successful prototype of a straight line structural lattice in hyperbolic paraboloidal shape was built at the University of Kansas, (Architectural Record, August, 1956), Dr. Donald Dean, assistant dean of the University's School of Engineering and Architecture, began design studies and calculations for a similar structure to roof his own residence.

As completed, the roof consists of two hyperbolic paraboloids, each of which is a section of a regular hyperbolic paraboloidal saddle oriented so that the diagonals are in line with the principal parabols of the surface. The units are each 40 ft square in plan, and have a common center beam which joins the two edge beams at the front of the house to form a tripod that acts as a stable core for the structure. The edge beams are box sections with their top and bottom plates rabbeted to receive side members made up of 2 by 12's. Membrane for the shell is composed of two layers of fir 1 by 8's, laid in the direction of the generators at right angles with the edge beam in the horizontal projection, and fastened to the edge beams by a 2 by 4 nailer glued and nailed to the beams. All connections in the shell were made with glue, supplemented by nails at the edge beams and perimeter membrane connections and by screws at each intersection of the membrane boards. To finish the shells, one inch of rigid insulation was laid diagonally across the curve and faced with a three-ply built up roof. All holes for vent stacks and minor flues were cut without reinforcing the membrane, except in the case of the 18 in. fireplace flue which was cut through a 3/4 in. plywood plate glued and nailed to the membrane when the insulation was placed. At their downpoints, the shells are carried by three low piers poured on I-shaped footings. Proportioned primarily for overturning moment, the footings also provide a high safety factor against sliding, making foundation ties unnecessary.



## DURABLE

A Fiberglas\* Built-Up Roof embodies the construction principle of *durable*, rot-proof materials.

This great new advance in built-up roofing makes the layered, bulky construction of old-fashioned rag-and-paper felts a thing of the past. Light, inorganic fibers of glass in Fiberglas Built-Up Roofing won't rot, won't wick-out essential bitumen oils—roofs resist drying out and cracking. And the bitumen is permanently reinforced—in a single monolithic sheath—by the same super-strong, durable fibers used in Fiberglas-reinforced fishing rods and boat hulls.

Because Fiberglas Built-Up Roofing is reinforced this new way, the entire thickness of the built-up structure acts to resist the ravages of weather. Proved in use for many years, Fiberglas materials can outlast the bitumen itself! Under any weather conditions, Owens-Corning will bond your roof for up to 20 years! And with Fiberglas Roof Insulation under a Fiberglas Built-Up Roof, you have a quality roof from top to bottom. It's amazing the difference Fiberglas makes!

SEND FOR FREE SPECIFICATION BOOK—Reinforced Built-Up Roofs—containing 32 pages of technical and design data later than current Sweet's Files. Address Owens-Corning Fiberglas Corp., Dept. 68-K, Toledo 1, Ohio, or Santa Clara, Calif.

FIBERGLAS

WT-M. (Reg. U. S. Pat. Off.) O-C.F. Corp

Roofing Products—FIBERGLAS PERMA-PLY\* - FIBERGLAS RASE SHEET - FIBERGLAS COMBINATION SHEET - FIBERGLAS ROOF INSULATION FIBERGLAS FORM BOARD - FIBERGLAS MOP YARN - FIBERGLAS COROTOP\* (Cold-application toof resurfacing)

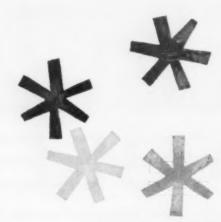


Ordinary roofing felts separate bitumen layers—voids between layers may result in premature failure.



Fiberglas roofing bonds bitumen applications together creates a single reinforced monolithic roof.

Durable Stonehenge mainirs have withstead the ravages of twenty centuries.



## Which is the best way to air condition a building?



That depends on the building. Its size, age and shape are important. Its construction details, such as windows, walls and columns, affect the location of individual units. Carrier has all the answershere's the newest! Modular Weathermaster\* units. Based on the "building block" principle, they adapt to windows and wall construction in both new and old buildings, provide individual climate control in each room. Only Carrier makes Modular units like these to fit any building problem. Here are six of many combinations—note how flexible they are. For complete information, call your nearest Carrier office. Or write Carrier Corporation, Syracuse, New York.





\*

For column-to-column treatment, trim wall-hung units with standard prefabricated enclosures, accessories and shelving are "tailored" to fit building modules.



\*

For a clean, continuous appearance, two wellproportioned Weathermaster base units separated by a filler piece look good, make future partitioning easy.



\*

For pleasing corner assemblies, a wall-hung Modular Weathermaster unit with prefabricated cabinet and run-out enclosure is both attractive and economical.





For floor-fed services, a pedestal arrangement attractively conceals air and water risers. This method of distribution eliminates the need for furred-in risers.





For harmony with custom interiors, a decorative furred-in arrangement with base unit, inlet panel and discharge grille matches any interior treatment.





For modern, all-glass buildings, a "foot-high" column-to-column arrangement is extremely flexible and blends well with modern architecture and furnishings.

### PRODUCT REPORTS

(Continued from page 223)

### Monolithic Floor Surfacing

Monile, a new impact- and chemicalresistant monolithic floor surfacing material, is formed in place and bonds to cement or other surfaces with a strength of 585 psi as compared to 15 psi for concrete. According to the manufacturer, the chemical reactions which take place when a copolymer liquid is mixed with the pulverized Monile composite result in the formation of a dense manmade stone with unusual strength, as

well as extremely high resistance to chemicals, freeze-thaw and sharp impact. The recommended half-inch application of Monile eliminates the necessity for cutting out old floors, and the material can be troweled to any surface finish attainable with concrete without impairing its non-slip qualities. The Master Mechanics Co., 2097 Columbus Rd., Cleveland, Ohio

## **Brighter Fluorescent Lamps**

A new fluorescent lamp which produces two and a half times as much light as standard fluorescent lamps is expected to find wide use in industrial and outdoor applications. According to the manufacturer, the increased output of the Super-Hi lamp is obtained in conventional size tubes by a new design which permits extremely high loading of the electrodes, the arc stream and the phosphor. The lamps are said to have excellent starting and operating characteristics, and are available in 48, 72 and 96 in. sizes, rated at 6000, 9300 and 13,000 initial lumens respectively. Westinghouse Lamp Div., Bloomfield, N. J.



### Weatherproof Outdoor Floodlight

The Luster Light, a new bullet-shaped floodlight, combines indoor styling with outdoor stamina. Precision cast of high strength aluminum alloy, the lamp is buffed to a mirror finish before being coated with a clear synthetic resin that is said to preserve the finish even in corrosive atmospheres, and to resist cracking, peeling, pitting, fading and discoloring. Moldcast Mfg Co., 24 Avenue B, Newark, N. J.



## Interlocking Plastic Wall Panels

Strypanels, said to be the only multicolored plastic wall panels on the market, feature a locking device similar to tongue and groove construction which secures each panel joint without visible seams. Manufactured from high impact styrene, the striated panels come in 1 by 8 ft and 1 by 41/2 ft sections with random striping in twelve color combinations. Cermak Tile Co., Inc., 4901 Brookpark Rd., Cleveland, Ohio.

(More Products on page 262)



## **How to Flash and Waterproof** with PERMANENT COPPER for less than 15° PER SQ. FT.

Copper Armored Sisalkraft is reenforced waterproof paper coated on one side with pure copper. You get pure copper protection at low cost for all concealed flashing: over spandrel beams, on parapet walls, door and window flashing, in shower stalls, boiler and shower rooms.

Copper Armored Sisalkraft can be applied rapidly and easily. It is workable at any temperature and bonds well. It is permanent . . . non-corroding . . . proven.

## American SISALKRAFT Corporation

New York 17

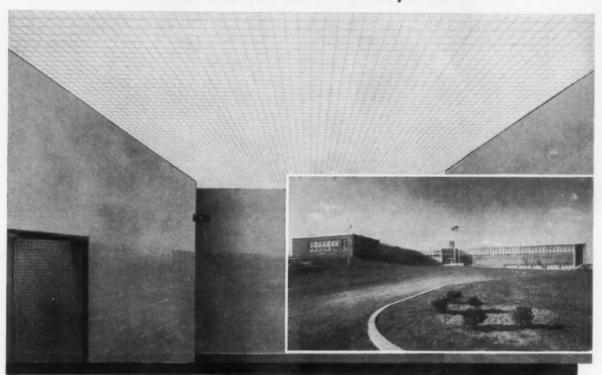
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## \*WE ARE HAPPY WITH OUR CHOICE of NEO-RAY LOUVRED CEILING

For The Hiram W. Dodd Elementary School



\*HIRAM W. DODD ELEM. SCHOOL, Allentown, Pa.

\*High quality finish materials requested by the owner. The Neo-Ray ceiling was desired by the architect to give variety and accent to the lower level corridor design—the corridor ceilings being acoustic plaster elsewhere. We are happy with our choice of grid ceiling. Architect:

WOLF & HAHN Allentown, Pa.

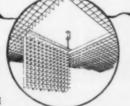
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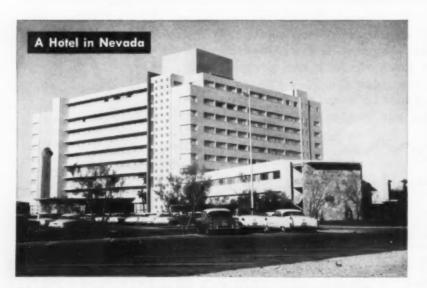
NEO-RAY PRODUCTS, Inc. 315 East 22nd St. • New York 10, N. Y.



Ease of Installation counted heavily with the architect and builder who used Steeltex for concrete slabs on the Travis Junior High School in McAllen, Texas. Architect: Zeb Rike of McAllen. Contractor: W. E. Crawford Co. also of McAllen. Steeltex was chosen because of its "low cost, ample supply, ease of installation and low labor costs."

No wonder Steeltex is used everywhere when...

## Steeltex saves 55 working days on one job



Elimination of forms was cited as a distinct Steeltex advantage by the architect for this job, the Riviera Hotel in Las Vegas, Nevada. When a 200-room addition was planned, Steeltex was specified for that, too. Architect: Roy F. France & Son, Miami Beach, Florida. Consulting Architect: J. Maher Weller, Las Vegas. Contractor: Taylor Construction Co., Miami, Florida.

On big jobs or small . . . in the East, West, North and South, you'll find Steeltex. Architects and contractors like the way it speeds work, cuts costs and makes better concrete slabs.

Steeltex, the Pittsburgh Steel wire mesh reinforcing that carries its own waterproofed form right on its back, is the answer to a big question that designers and builders face constantly:

"How can we maintain or improve quality on our tight budget and move in quicker?"

In California, Designer Robert Sherman, C.S.D., credits Steeltex with pulling him out of a jam when heavy rains and windstorms delayed construction of the \$2,800,000 Villa Hotel in San Mateo.

For a while, Mr. Sherman said, it appeared that bad weather would hold up the opening past the start of the 1956 Republican National Convention in nearby San Francisco.

"When weather conditions finally let us go back to work, Steeltex saved us 55 working days or 20 percent of the total construction time," he related.



Speedy construction possible with Steeltex pulled the builders out of jam in construction of the luxurious Villa Hotel in San Mateo, California. This is the job where Steeltex saved 55 working days. Designer: Robert Sherman of San Mateo. Contractor: Pacific Development Co.

A TV Station in Alabama

Low cost of changing plans when Steeltex is used made a hit with the builders of WSFA Radio and TV Center in Montgomery. Architects: John Shaffer and A. L. Williams Jr. Structural Engineer: Cecil Williams. Contractor: Bear Brothers Construction Co.

"We completed the hotel in time for the Texas delegation to occupy their reserved rooms."

Mr. Sherman, who has used Steeltex on everything from a closet-size used car lot headquarters to a big office building, said, "Builders who overlook using Steeltex on small jobs are missing a good bet."

Now, jump north to Erie, Pa., where E. E. Austin & Son, Inc., built a new Airport Terminal at the Erie Airport which was designed by Nelson, Goldberg & Heidt, registered engineers and architects. Construction Superintendent John McKinnon said:

"We've laid acres and acres of

Steeltex. You can't beat it on costs. Why, Steeltex installed costs less than the lumber alone if we had to build forms."

A similar commendation came from Texas where the \$380,000 Travis Junior High School is the pride of McAllen, Texas. For that job, Architect Zeb Rike chose Steeltex for 43,698 square feet of second floor and roof deck because of its "low cost, ample supply, ease of installation and low labor costs for installation."

On the same job, Contractor W. E. Crawford declared he had always gotten "fine results with Steeltex."

"All you do is unroll it, tighten it, clip it and pour concrete. I'd recommend Steeltex any place a fine masonry deck is needed."

In Las Vegas, Nevada, where there's no gambling in building construction, Steeltex was specified by Architect Roy F. France Sr. for 108,000 square feet on nine floors of the Riviera Hotel and a new 200-room addition. Mr. France said:

"Steeltex eliminated extra

work because it did away with forms. It permitted quick installation and made for a less expensive job."

On a new office and studio building for Station WSFA in Montgomery, Alabama—the \$145,470 WSFA Radio and TV Center—the building schedule was tight because of commitments made to the FCC.

Here Architects John P. Shaffer and Albert L. Williams Jr. found:

"Steeltex let us get the building closed in quicker and also allowed us to change our minds on the layout of the floor conduits required by a modern TV and radio station. We were grateful that Steeltex permitted us to make changes with a minimum of loss and delay."

Steeltex can provide savings in time and money for you, too, while giving you better, higher quality slabs.

Cash in now on the advantages of using Steeltex. You can do it by calling the nearest Pittsburgh District Sales Office listed below. Do it today.



The low cost of Steeltex compared to lumber for forms was cited during work on the new terminal at Port Erie, the airport at Erie, Pennsylvania. Architect: Nelson, Goldberg and Heidt of Erie. Contractor: E. E. Austin & Son, Inc., of Erie.

▶ See Sweets Catalog Section 2-B

## Steeltex®

## **Pittsburgh Steel Products**

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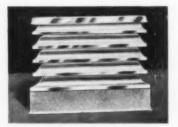
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## PRODUCT REPORTS



### Packaged Air Curtain

The Air Curtain entrance which does away with conventional doors for stores, shops and buildings is now available as a prefabricated package unit for entrances 6, 8, 10 or 12 ft wide and 8 ft high. By hermetically sealing the entrance area with a curtain of moving air. the unit permits free movement of traffic in and out of an entrance, but, at the same time acts as an insulating barrier against outside heat or cold. The Air Curtain comes completely equipped for operation with steam, hot water or gas heat, and can be had in aluminum or porcelain enamel finish, with either folding doors or sliding panels for night closing. American Air Curtain Corp., 10408 Manchester Ave., St. Louis 22, Mo.



## **Extruded Aluminum Penthouse**

A new prefabricated penthouse for taking in or exhausting air on roofs features "S"-shaped outside louvers which are said to allow greater free area while maintaining effective weather protection. The louvers, like the channel frame, are made of extruded aluminum sections, and extend continuously on all four sides of the penthouse. The roof cover is of one-piece 12 ga. sheet aluminum with undercoat insulation and sound deadener. Custom manufactured to any required curb size, the aluminum penthouses can be furnished in standard mill finish or anodized in a choice of colors. Tilus Mfg. Corp., Waterloo, Iowa

(More Products on page 264)



THE GREATEST

Hidden Value ...

## **THRUSH**

hot water heat



## MAKES ANY HOME MORE DESIRABLE AND SALABLE

ONE "HIDDEN VALUE" the home buyer recognizes is Thrush Radiant Hot Water Heat. It makes the home more comfortable, more valuable . . . and costs less for fuel. It's a real feature in making the sale.

Thrush Radiant Hot Water Heat is a "must" for multi-level homes like those shown here, and the ease with which it may be zoned is another big "plus." Forced circulation plus zoning assure constant radiant heat and uniform temperatures in each zone regardless of outdoor weather changes.



THRUSH WATER CIRCULATOR

See our catalog in Sweet's or write Department J-11 for more information.

H. A. THRUSH & COMPANY

PERU, INDIANA

## Executone gives you 4-way service for sound and intercom systems!

We provide not only wiring plans, shop drawings, specifications and costs, but with our nation-wide organization of exclusive distributors we also give your clients on-premise maintenance of equipment and instruct their personnel in its proper use. If you have a job on your boards that should utilize intercom or sound, you should be familiar with these four important Executone services:

## Not only this...

### **Consultation Service**

Executone's Field Engineers will assist you in determining your clients' communication needs... recommend the system designed for the job... provide you with a professional consultation service.

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Each local Executone distributor is prepared to take full responsibility for the final and satisfactory operation of the system, whether installed by the contractor, or his own factory-trained crew.

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INTERCOM AND SOUND SYSTEMS FOR HOSPITALS, SCHOOLS, HOMES, PLANTS, OFFICES

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### PRODUCT REPORTS



### **Patterned Shower Enclosures**

Bold collages of birds and fish executed in colorful fabrics and permanently embedded in cast acrylic sheets highlight the Wasco line of Showerwall panels for tub enclosures and shower doors. Patterns include the whimsical "Birds in a Tree" shown above: "Wild Geese," a stylized black, vellow and white collage of wild geese in flight; and "Fish," a colorful design in which fabric fish swim across a background of gold or silver mesh. Also available are seven more naturalistic panels done in ferns, flowers and other textured objects, and two in corrugated silver and gold mesh. Wasco Products, Inc., Cambridge, Mass.



### Wall-Hung Residential Toilet

The Norwall, said to be the first wall-hung toilet styled for residential installation, is an efficient, quiet-operating fixture that bears little resemblance to its institutional counterpart. The new close-coupled toilet is suspended clear of the floor by a sturdy carrier tied directly to wall studs in a standard six inch wall, and needs no wall-access panels. Its tank is 12 in. high, 21 in. wide and only 7 in. deep, while the bowl stands 15 in. high and projects 26 in. from the wall. American-Standard, Plumbing and Heating Div., 40 West 40th St., New York 18, N. Y.

(More Products on page 268)

# Why modern hospitals are being equipped with Sarcotherm heating control systems

Why hospitals find Sarcotherm Systems ideal.



- Flexibility these systems, because of their great adaptability, can be applied to satisfy the varying heating control requirements of a specific hospital.
- Dependability because of simplicity, no complicated mechanisms. Only a few simple, rugged instruments. Minimum of wiring and piping. Self-powered mixing valves require no electricity or compressed air. Result: uninterrupted heating comfort, long service life.
- Ease of temperature setting regular hospital maintenance men quickly, easily make adjustments.
- 4. Practically no maintenance rugged construction and few parts insure long trouble-free operation. Self-powered thermostatic system embodies performance stability developed through half a century of Sarco experience.

## SOME TYPICAL HOSPITALS EQUIPPED WITH SARCOTHERM SYSTEMS

		Number of Zones
Chatooga Hospital	Summerville, Ga.	4
Children's Hospital	Washington, D. C.	5
Community Hospital	Cumberland, Wisc.	4
Copiah County Hospital	Hazelhurst, Miss.	5 4 3
Delaware State Hospital	Farnhurst, Del.	11
Embreeville State Hospital	Embreeville, Pa.	53
Freeport Hospital	Freeport, L. I.	
New Leake County Hospital	Carthage, Miss.	4 5 4
North Carolina State Hospital	Goldsboro, N. C.	4
Milledgeville State Hospital	Milledgeville, Ga.	13
Rabun County Hospital &		
Health Center	Clayton, Ga.	5
Rowan County Medical Center	Salisbury, N. C.	5 5 5 4
Springfield State Hospital	Syskeville, Md.	5
V. A. Hospital	Clarksburg, W. Va.	4
Woodville State Hospital	Woodville, Pa.	18
York County Home	York, Pa.	13

FOR COMPLETE CONTROL SYSTEM CATALOG, write Sarcotherm Controls, Inc., 635 Madison Ave., New York 22, N. Y.

Why architects, engineers, contractors find Sarcotherm Systems ideal for hospitals...



- Application engineering Sarcotherm engineers, backed by years of experience in hospital heating control systems, assist consulting engineers with individualized system diagrams.
- Easy to install drawings and diagrams of the complete system are furnished for each job.
- On-the-job assistance to contractors, from Sarcotherm's field engineers.
- Low installed cost because of simplicity; minimum of wiring and piping.
- Undivided responsibility complete control system plus heating specialties and accessories from one dependable source – Sarcotherm.



Hempstead General Hospital, Hempstead, L. I., N. Y.

One of the recently completed hospitals equipped with a Sarcotherm Weather-Compensated Control System for hot water heating. Installation includes 5" Sarcotherm 3-way modulating mixing valve, programmed timer, radiator valves, balancing fittings, automatic air vents and other heating specialties.

Architects - Samuel Paul and Seymour Jarmul, Jamaica, N.Y. Heating Contractor - Seaboard Installations, Inc., New York City.

4016-R

Sarcotherm

AN AFFILIATE OF SARCO CO., INC.

Weather-Compensated control systems for steam, hot water and radiant heating

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"Exit Specialist" will be glad to help you plan the best exit for your needs. If you don't know his name, write direct to factory.

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You use great care in the engineering and installation of your heating and air conditioning equipment. Yet most of the items are hidden from the homeowner's view—in the attic, closet or basement.

Only the registers are in plain sight in every room in the home at all times. So it is important to be sure the registers reflect the true quality of the installation. These "showpieces of your job" should not only be better in design and performance, but also superior in beauty and strength.

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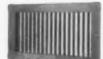


**Ceiling Diffusers** 



**Baseboard Diffusers** 





Air Conditioning Grills, Valves

## PRODUCT REPORTS



## Electric Heating-Cooling System

In a new system for year round air conditioning without furnace, chimney or ducts, an electric heat pump is used with each unit in the system to circulate the heating medium. During the summer months, chilled water from a remote source is circulated while the Percojet heat pump remains inoperative; when heating is required, the heat pump automatically begins circulating hot water within each unit. Temperatures are controlled by adjusting a variable speed centrifugal fan to give the desired amount of heating or cooling effect. Single units have a rated capacity of up to 11,400 Btuh for heating and 4800 Btuh for cooling, and are available in 115 or 230 volts. Electric Heating and Cooling. Inc., 890-898 Broadway, Newark 4, N. J.



## **Drinking Fountain Combinations**

Two-bowl stainless steel sink and drinking fountain combinations specially designed for school and institutional use are available in four models with overall sizes of 32 by 17 in., 34 by 16 in., 35 by 17 in. and 37 by 14 in. Two models offer an oval drinking fountain bowl combined with a 16 by 11½ in. rectangular bowl, while one model has a 12 in. round bowl. All four units can be had with the bubbler on right or left, and have been designed to meet plumbing codes requiring separate compartments for washing and drinking. Elkay Mfg. Co., 1874 S. 54th Ave., Chicago 50, Ill.

(More Products on page 274)



Design for living . . . for sales BEGIN WITH A BEAUTIFUL BACKGROUND of plastic wall tile

Beginning with a handsome entry wall, you can extend salesmaking decorative features all through your homes with plastic wall tile made of Styron<sup>®</sup>. Square tiles make the patterned wall of this entry not only beautiful, but completely practical . . . a sought-after feature in today's wonderfully livable homes. Many decorator-styled colors and versatile tile shapes, plus light weight and easy, cost-saving installation . . . all give free rein to your decorative ideas in Styron plastic tile.

The interiors you design in Styron plastic tile will live up to your finest homes, for your certified dealer can *guarantee* the quality of tile, mastic and installation. Let him help you give your homes this permanent, easy-care beauty. The dow Chemical Company, Midland, Mich., Plastics Sales Dept. PL1560G.

Interior designs by John and Earline Brice.



IDEA! A colorful bookshelf wall in easy-to-clean Styron plastic tile brightens a small den.



## Lifetime perimeter



Place Styrofoam horizontally, next to exterior walls . . .

## Wolfe & Gilchrist choose STYROFOAM for finest perimeter insulation

Keith Gilchrist, builder of contemporary homes, reports, "I've found Styrofoam the best ever for perimeter insulation in basementless homes. The way it protects against cold, heat and dampness is really something."

(All photos shown here were taken in Wolfe & Gilchrist's Holly Hill subdivision, northwest of Detroit, Michigan.)





## insulation with Styrofoam





2 Apply vapor barrier . . .

**3** Pour concrete floor slab . . .

**STYROFOAM\*** (a Dow plastic foam) is a new kind of homogeneous insulation introduced by Dow, First in Foam. It resists rot, mold and deterioration. It has no food value—does not attract rodents and vermin.

A plank 9 feet long and 1 by 12 inches weighs less than 22 ounces! It's strong enough to support a commercial vehicle. Won't absorb water—even after a week's immersion only the open surface cells show any sign of moisture.

Here's an economical insulation—clean, easy to handle—available in various lengths, thicknesses. The millions of

tiny, noninterconnecting cells block out heat and cold. What's more, Styrofoam gives lifetime protection.

**PROVED FOR 10 YEARS** – Since 1946, Styrofoam has established a consistent record of satisfaction in the field of industrial refrigeration. Here only the best is good enough.

Now that Dow has increased production, Styrofoam is available as comfort insulation. Builders, architects and home owners, too, can profit from its unique combination of properties.

For further information, contact your nearest Styrofoam distributor: CALIFORNIA, San Francisco: Western Foam Products, Inc. \* CALIFORNIA, Los Angeles 13: Pacific Foam Products Company \* FLORIDA, Tampa: The Soule Company \* GEORGIA, Atlanta 8: Badham Sales Company \* ILLINOIS, Chicago 11: The Putnom Organization, Inc. \* IOWA, Des Moines: Wilson-Rogers, Inc. \* KANSAS, Kansas City: Styro Products, Inc. \* MASSACHUSETTS, Ipswicht Atlantic Foam Products Company \* MICHIGAN, Detroit: Par-Foam, Incorporated \* MICHIGAN, Midlands Floral Foam Products \* MINNESOTA, Minneapolis 8: Edward Sales Corporation \* MONTANA, Billings: Madden Construction Supply Company \* NEW YORK, Rochester 20: William Summerhays Sans Corp. \* NEW YORK, Inc. \* Jesus York, Rochester 20: William Summerhays Sans Corp. \* NEW YORK, Inc. \* PENNSYLVANIA, Plymouth Meeting: 6 & W H Corson, Incorporated \* TEXAS, Houston: The Emerson Company \* UTAH, Salt Lake City 10: Utah Lumber Company \* WASHINGTON, Seattle 9: Wiley-Bayley, Inc. \* WISCONSIN, Milwaukee: S & S Sales Corporation \* CANADA, Edmonton, Alberta: Northern Asbestos and Building Supply Co., Ltd. \* CANADA, Kitchener, Ontario: Durofoam Insulation, Ltd. \* CANADA, \*STYROFOAM IS A REGISTERED TRADEMARK OF THE DOW CHEMICAL COMPANY, Midland, Michigan—Plastics Sales Department 1744 Y-1.

YOU CAN DEPEND ON





## LATEX PAINT FACTS FOR ARCHITECTS

New 16-page booklet tells why and where to specify latex paints

Now in one easy-to-use booklet you can get answers to your questions on latex paints—their uses, benefits and limitations. "Why and Where To Specify Latex Paints" was written to serve as a helpful guide for architects, specification writers and contractors.

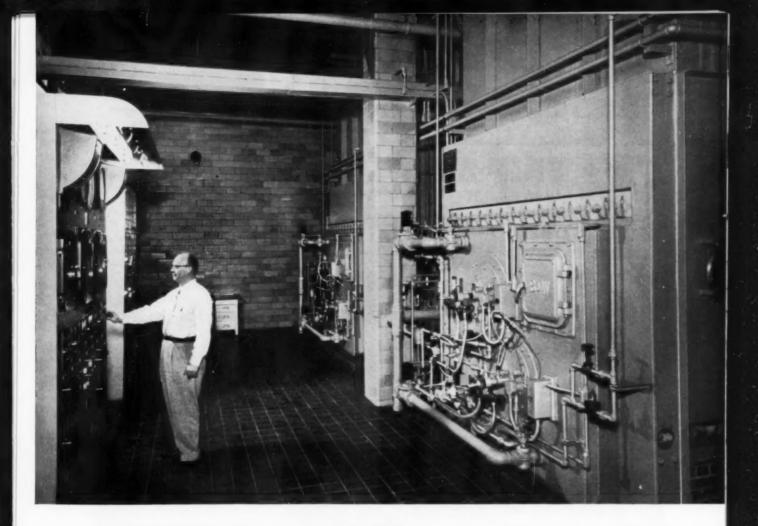
This booklet answers such questions as: On what interior and exterior surfaces can I specify latex paints? Where should they not be specified? Why can they be applied over freshly dried plaster? Why don't surfaces

need to be primed before latex paints are applied? Can coats of latex paints and oil paints be applied alternately in successive coats? What controls chalking in latex paints?

Get the answers now to these and the other questions you have about latex paints. For your copy of this booklet write to the dow Chemical Company, Midland, Michigan, Plastics Sales Department 1836WW.

YOU CAN DEPEND ON





## Hospitals Turn to B&W Integral-Furnace Boilers for Reliable Supply of Clean, Dry Steam

Every day, year after year, even the routine activities of a hospital are vital. The continuous, reliable services expected from hospitals must be matched by the equipment upon which they depend.

Institutions like St. Mary's Memorial Hospital at Knoxville, Tenn., have come to depend upon the reliability and continuity of operation offered by B&W Integral-Furnace Boilers. Cleanliness of operation, high fuel economies, and maximum capacity in small boiler room space are other benefits of these units which appeal to health and budget-conscious hospital management.

Modern, efficient steam supply with ample capacity for future needs, which include a new 105-bed wing and 150-bed nurses' residence with classrooms and auditorium, are being provided at St. Mary's Hospital by two new B&W Boilers.

Flexibility of the B&W Integral-Furnace design is another of the many reasons why St. Mary's and scores of other hospitals throughout the country have selected B&W. The new boiler at Knoxville is oil and gas-fired, with provision made for the installation of a stoker for future coal firing.

Rapid response to steam demands, dependable supply of clean, dry steam, and the ready availability of a nation-wide service staff, have given B&W Boilers preference among those who specify and buy for hospitals and institutions throughout the nation. B&W provides a single responsibility in design, engineering, manufacturing, installation, and service through a national network of plants and engineers.

The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.



Two B&W Integral-Furnace Boilers at St. Mary's Hospital have capacity of 30,000 lb. of steam per hour each at operating pressure of 110 psi. Design pressure of 160 psi. Architect: David B. Liberman, Knoxville, Tenn. Consulting Engineer: Albert F. G. Bedinger, Knoxville, Tenn.



## two superior open steel FLOOR GRATINGS

BY GLOBE





## FOR MAXIMUM SAFETY ALL OVER YOUR PLANT

**Important Safety Features** 

- ★FIRE PROOF ★SLIP PROOF
- \* MAXIMUM STRENGTH
- \* MINIMUM WEIGHT

## **Important Economy Features**

- \* All one piece, not welded, riveted or expanded
- ★ Open space in excess of 55% of area for easy access of light and air
- ★ No extra supports necessary—channels are integral part of the material. ★ Self cleaning
- ★ Cut and installed like lumber by your own maintenance force. ★ Low in original cost. ★ For balconies, no secondary sprinkler heads needed

Ideal for work platforms, stair and ladder steps, flooring, balconies, catwalks, machinery guards, fire escapes and for original equipment safety treads.

The QUALITY GRATING for Heavy Duty Applications

- \* 36" projection weld nugget for greater rigidity and strength
- ★ Vertical alignment of the main load bar assured
- ★ All bars are load carrying bars including secondary bars
- \* Anti-skid pattern

## **PROJECTION WELD**

Each secondary load bar (A), as projected welded to the primary load bar

(B) has a shear strength of 5,000 pounds per weld. There are 28 such projection welds to a square foot of grating. This means that GOLD NUGGET Welded Grating can sustain greater shock loads than other gratings. — — — —

For the complete details of these revolutionary new gratings, write for new catalogs today. Distributors in all principal cities. Consult the yellow pages in your phone book under "GRATING".

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## PRODUCT REPORTS

## Photoelectric Light Control

The Type 21BJ3 photoelectric light control is said to provide reliable automatic on-off control of highway, airport, industrial, display and other lighting systems whose operation should be related to outdoor light conditions. Because the control reacts automatically to actual daylight intensity, it is unaffected by seasonal changes, weather or time of day, and switches lights on whenever they are needed. Photoswitch Div., Electronics Corp. of America, Cambridge 42, Mass.



### Double-Hung Reversible Window

A new double-hung reversible window framed of extra heavy extruded aluminum sections incorporates a pivoting feature, used on the manufacturer's wood windows for over fifty years, which permits either sash to be pivoted in the lower position for easy cleaning of exterior glass surfaces from the inside. Either sash (or both) may also be tilted for draftless ventilation, and, by simply disengaging four screws in each sash. may be readily removed from the frame. Sash and frames are custom made to sizes specified by the architect, and come completely weatherstripped and ready for installation. Williams Pivot Sash Co., 1827 East 37th St., Cleveland 14, Ohio.

### Self-Contained Partition

Coil-Wal, a new low-cost automatic partition, coils completely in its own storage box, requires no heavy overhead trusses or beams, and permits flush ceiling design. Constructed of narrow vertical grain Douglas Fir slats joined by lightweight, prestressed steel cables, the partitions are said to provide excellent acoustical control in locations where noise levels on either side are nearly

(Continued on page 276)

Hall-Mack's
enduring beauty
makes
lightwork
for everyone

Here's bathroom beauty without upkeep...
Hall-Mack's beautifully chrome plated
accessories make light work for everyone—add
sparkle to each bathroom. With Hall-Mack,
homeowners enjoy so many conveniences—
so many modern features that lift any bathroom
out of the ordinary.

There are several complete lines of matched accessories in a wide variety of original designs and ideas—to blend with any bathroom style or budget...their gleaming chrome finish gives years of wear with *only* minutes of care. With Hall-Mack, you're sure to find a style and size which will best suit your taste and needs. When planning, modernizing or building—install Hall-Mack for the finest in bathroom accessories.

concealed lavatory unit, revolving door hides soap, tumblers and brushes





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in sparkling chrome.

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## HALL-MACK COMPANY

DIVISION OF TEXTRON INC.

1380 West Washington Blvd., Los Angeles 7, California

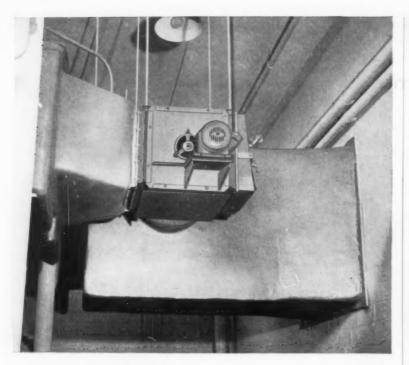
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FANS . UNIT HEATERS . DRAFT INDUCERS . BLOWERS . TURBINES

### PRODUCT REPORTS

equal. The coil box design and straightline travel permit mounting the overhead track alongside the supporting member for full clearance under supports, and operation requires only a 3 in. space between equipment in adjacent areas. Custom-made to any size and structural requirement, the Coil-Wal partitions are available in both hand operated and electrically actuated types. Dubuque Products, Inc., Dubuque, Iowa.



## Foamed-Plastic Building Panels

A new process for laminating aluminum. wood, glass, porcelain or other materials to a rigid core of foamed plastic is being used to manufacture insulated panels that are expected to find broad application in the building industry. Depending upon their end use, the panels can be constructed of a wide choice of materials including plywood, plasterboard and acoustical materials - in combination with color anodized aluminum or patterned sheet; and tubing for conduit, or for heating and cooling, can be placed in the plastic core during production. Because the planks are fabricated by a continuous bonding method, lengths are limited only by the size and availability of handling and packing equipment. The panels will initially be sold in thicknesses up to 6 inches, and widths up to 4 ft. Aluminum Co. of America, Rm. 720, Alcoa Bldg., Pittsburgh 19, Pa.

## Structural Steel Tubes

For the first time welded square and rectangular structural steel tubes in continuous 24-foot unspliced lengths, 25-to-32 inches in girth, are being made available for the construction industry, according to the manufacturer. Adaptable for window wall construction, thickness of the tubing will be increments from ½" to ½" inclusive. It is said that the tubes can be used either as load bearing columns or for overhead structures and trusses such as bridge guards, crash rails, catwalks, pillars and racks. Union Asbeslos & Rubber Company, Chicago, Ill.

(More Products on page 280)



the entire floor surface . . . quickly, inexpensively and cleanly. You will be able to move partitions and furniture at will with no worry about the distance to the nearest electrical and telephone outlets. They will be there! It pays to keep in mind that even though you may not need a building as hir as the Prudential Building in Chicago, or the U.S. Steel-Mellon Bank Building in Pittsburgh, or the Lever House in New York, you will want the modern efficiency that Q-Floor brings to them. Use the coupon to write for literature.

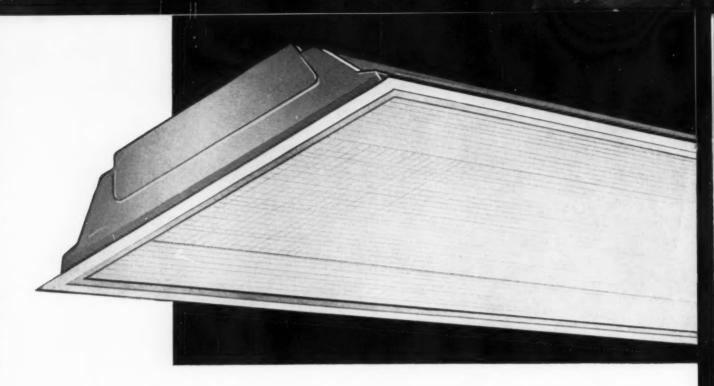
## 2404 Farmers Bank Building, Pittsburgh 22, Pa.

In England-Robertson Thain Ltd., Ellesmere, Cheshire In Canada—Robertson-Irwin Ltd., Hamilton, Ontario • Edmonton, Alberta

Please send 44-page Q-Floor Manual.

CITY

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## New Day-Brite Mobilex FOR

MODULAR **ASSEMBLY** 

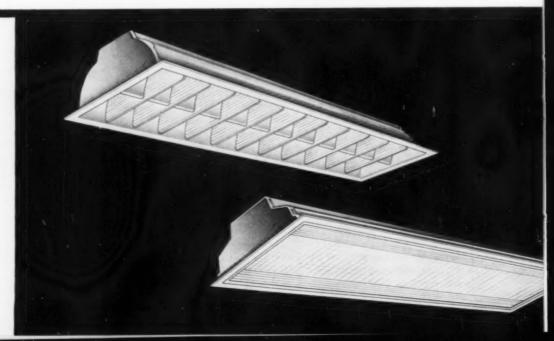
## New **Day-Brite** TROFFERS

### Alzak Paralouver

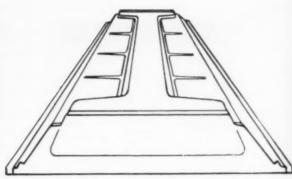
Exclusive patented aluminum Paralouvers® reduce "glare-zone." Alzak body and center louver form parabolic shape, control brightness from side. Available in 4-foot, 8-foot, and fill-in sections for all plaster and acoustical ceilings. Width 12 inches. Rapid-Start or Slimline lamps. New low prices. low prices.

## **Plastic Cleartex**

Exclusive light weight, low-brightness, high light transmission Plastic Cleartex enclosure hinges from either side for easy maintenance. Supplied as 4-foot, 8-foot, or fill-in sections. Two or three lamps, Rapid-Start or Slimline. For all plaster or acoustical ceilings. New low prices.







SHALLOWER by a full 2-inches, "rigidized" construction, new Mobilex takes less space, increases design freedom, produces better specifications.

Introducing a New Mobilex...available now! Brilliant achievement in fixture design! Superb expression of the modular concept. Compatible with 97 different ceiling systems for the ultimate in modular assembly.

Available as 2-foot, 4-foot, or fill-in sections. Two, three, or four lamps. Mount end to end or side by side. You can even install additional fixtures later, inexpensively, because Mobilex is interchangeable with acoustical ceiling panels.

Now two inches shallower, ½ lighter, new Mobilex is faster, safer, easier to install.

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### PRODUCT REPORTS

## **Pulse Combustion Heater**

Adapting the principle used for the propulsion engine of the German buzzbomb in World War II. a Canadian firm has developed a gas-burning pulse combustion water heater that delivers 100,-000 Btuh with an efficiency closely approaching 100 per cent. Designed to provide adequate heating for the average house, and to adapt to various industrial uses, the unit may be inconspicuously installed in only three cubic feet of space. Paramount among the advan-

tages cited for it are the low cost of operation and maintenance, and a sharp reduction in installation costs. Since the exhaust remains cool, costly and spaceconsuming chimneys are unnecessary; and combustion is so complete that exhaust gases are harmless, making it possible to vent the furnace at ground level. Lucas-Rolax Ltd., Toronto, Canada.

### Sound-Deadening Floor Tile

According to its manufacturer, Airpath cushioned rubber floor tile has sound control properties superior to other types of floor covering, including cork and carpet. Its dense rubber surface, backed by a buoyant cellular rubber cushion, is said to provide maximum impact noise isolation per unit thickness. Long used for hospitals, broadcasting studios and rooms housing automatic control equipment, it is now being offered in a new line of decorator colors for residential and commercial installations. The tiles are nine inches square by  $3_{16}$  inch thick. B. F. Goodrich Flooring Co., Waterlown, Mass.



## Plastic and Rubber Form Liners

Newly developed plastic and rubber form liners are said to produce sharp crisp patterns and a smooth surface that requires no cleandown, grinding or finishing, making possible an almost limitless variety of textures and patterns for concrete surfaces. Some textures in rubber liners, such as the one shown above, are already available in stock, while almost any pattern can be made to order in plastic liners. Best results are obtained when patterns are no deeper than 1/2 in. and edges and corners are rounded. The liners are relatively low in initial cost, cut finishing costs to almost nothing, and can be used for standard mixes with both light and heavy aggregates. Both types have been used for horizontally precast panels, but only the textured liners have been used for vertical cast-in-place construction. Portland Cement Assoc., 33 West Grand Ave., Chicago 10, Ill.



(More Products on page 284)

## ANOTHER Design ACHIE

## HAWS Model 1505





Another HAWS product of modern styling is now available for free adaptation to your architectural designing. Finished in gleaming white vitreous china, Model 1505 is securely mounted with cast wall bracket.

ALL of the dependable sanitation features long associated with HAWS Drinking Fountains are included: Angle-stream, antisquirt fountain head is raised and shielded; Head of chrome plated brass is vandal-proof mounted to bowl; Water pressure is automatically controlled through self-closing valve. This model conforms to government specifications for cantonment-type drinking fountains.



## The new 72-page HAWS Catalog is out!

It describes Model 1505 and all of the latest designs in HAWS Drinking Fountains, Electric Water Coolers, Eye-Wash Fountains, and KRAMER Flush Valves.

> If you haven't already received your copy, write today!



## An integrated family living area









-courtesy Family Circle Magazine

Three vital home areas—kitchen, dining and laundry—are smoothly integrated in this beautiful new kitchen by Mutschler. Though blended, each area does not interfere with work patterns of another. Such a kitchen is no happenstance. It's the result of careful planning, backed by years of specialized experience. That's why our kitchen planning services are valued by architect and builder alike . . . why we think you'll be interested, too. Send coupon to learn how the services of a Mutschler kitchen specialist may be made available to you . . . at no extra expense.

first name in the kitchen since 1893

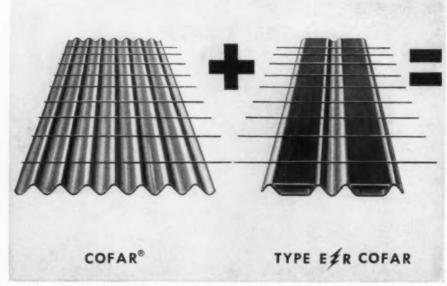
Please	1917 Mappanee, Indiana send complete information on your kitchens aring services.
name	
firm	
address	

## New reinforced concrete floor

Why didn't someone think of this before! One simple, cost-cutting operation, yet it combines 3 major steps in the construction of office building floor slabs—

- 1. Forming
- 2. Reinforcing
- 3. Electrification.

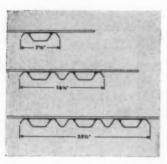
Heart of the system is Type E-R (for "Electrically Ready") Cofar, new cellular units designed to carry wiring. When these cells are combined with Cofar—a unit that forms and reinforces concrete—all 3 slab requirements above are met before concrete is placed! Chief advantages: A low-cost, high-strength floor with electrical flexibility that meets the present and future demands of any office building. No wasted fill. No wasted ducts or wiring. Fewer construction steps.



Conventional Cofar units are deep-corrugated high-strength steel units—2½ feet wide—with transverse wires welded across corrugations. The steel serves as a tight form for wet concrete and becomes main positive reinforcement when concrete sets. T-wires furnish necessary temperature reinforcement and mechanical anchorage between slab and steel.

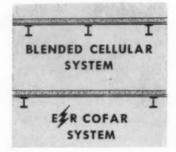
E-R Cofar cells are used between conventional Cofar units. These cells are wide troughs capped to form spacious 5.2 square inch raceways for wiring. NOTE: E-R Cofar units also have T-wires welded across corrugations to maintain Cofar composite slab action. Type E-R Cofar is equally suited to steel or concrete frame construction.

## CHECK THESE MONEY-SAVING ADVANTAGES OF THE EXTR COFAR SYSTEM



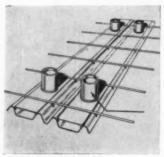
## 1, 2 or 3-Cell Units

With E-R Cofar, you choose the amount of electrification you want. One, two and threecell units are available and spacing between units may be varied as necessary. Units are available in lengths to 16 feet and are manufactured from heavy gage galvanized steel.



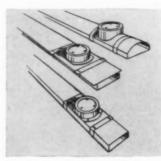
## Reduces Framing

Cofar slabs are more economical than any other type of floor forming and deck system on 10' to 14' beam spacings. Wide spacing eliminates need for intermediate beams, saves on fire-proofing materials. Lighter dead loads also save on footings and foundations.



## Pre-Set Inserts

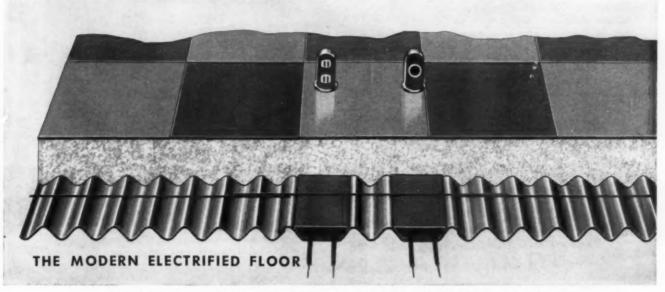
Available with either pre-set or with blank cap plate for after-set inserts, E-R Cofar provides complete electrical accessibility. Pre-set inserts eliminate noisy and costly concrete drilling operation. If desks are rearranged, floor service outlets can be located in minutes.



## Header Adaptability

Any Underwriters' Laboratories-approved header duct system (such as Nepco or Walker) can be used to activate Type E-R Cofar cells. When two or three-cell units are used, service fittings can be placed as closely as 8 inches apart on the finished floor (see above).

## system is completely electrified



In the finished system, E-R and conventional Cofar units work together to provide a superior reinforced concrete floor with complete electrification. A network of E-R cells—placed where you want them—assure electrical flexibility for the life of the building. Wires are pulled through the raceways and brought to desks and machines no matter where they are located. At the same time, Type E-R Cofar

floor slabs retain all the advantages of reinforced concrete. Concentrated loads are distributed by the 2-way slab action of high-strength Cofar floors. Structural tests verify the ultimate strength to be 7 to 10 times design load. Use of 1.5 oz. hot-dip galvanized coating guarantees building life permanence. Type E-R Cofar floor slabs offer a low-cost, high-strength floor which is always "electrically ready."

## UNDER CONSTRUCTION . . .

E-R Cofar has been specified for the Fidelity National Bank Building in Baton Rouge, La.

Architects: Wilson & Coleman
Contractor: L. W. Eaton Co., Inc.
Structural Engineer: Metrailer & Ingram
Electrical Engineer: Chesson, Forrest & Holland
Electrical Sub-Contractor: Sachse Electric Company
(All firms located in Baton Rouge, La.)



See all Granco catalogs in Sweet's Architectural and Industrial Files

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Project being studied.

## PRODUCT REPORTS

## Lightweight Gas Concrete

A new building material, developed in Sweden and recently introduced to this country, is said to combine the workability of wood with the durability of concrete. A homogeneous lightweight material of unusually high strength, Durox gas concrete weighs from 25 to 45 pounds per cubic foot, according to grade; is fireproof and water resistant; has 14 times the insulating value of ordinary concrete; and provides excellent sound attenuation. It can also be sawed,

nailed, bored or hewn on the job with ordinary carpenter's tools, and joined with mortar. The pre-formed building elements now being manufactured include roof and floor slabs, lintels, insulating slabs, and standard panels for exterior and partition walls. U. S. Durox Corp., of Colorado, Englewood, Colo.

### **Built-in TV Wiring**

Terco kits for TV wiring in new construction provide all necessary materials for installing one, two or four wall outlets into which the TV set antenna may be plugged directly, thus eliminating outside wires. The two- and four-outlet kits include a multiple set coupler which permits the operation of more than one set off just one antenna. Special kits are available for through-the-roof installation and for UHF or special antenna installation requirements. Tevco Insulated Wire Co., 108 Prospect Ave., Burbank, Calif.



### King-Size Drafting Triangles

A complete line of acrylic plastic drafting triangles can now be had in stock sizes up to 24 in., with larger sizes available on special order. According to their manufacturer, the new Layout triangles can be used in many instances where metal triangles were formerly required, and eliminate such disadvantages as heavy weight, non-transparency, soiling of drawings, and difficulty of manipulation. Dolgorukov Mfg. Co., 407 Fisher Bldg., Detroit 2, Mich.



## Hydraulic Drafting Table

The NIKE, a Dutch-designed drafting table with a hydraulic lift, can be rotated 360 degrees via a foot pedal, and can be raised or lowered and tilted to any desired angle. Because it is free-standing on its rotating hydraulic column, the table functions in a minimum of space. It is available in size up to 60 by 40 inches. The Jenny, a Dutch-designed drafting mechanism which may be used with the NIKE as shown above, is also available from GBF Special Filing Systems of America, 51 East 42nd St., New York, N. Y.

(More Products on page 288)



## Fabulous New Medical Sciences Building has MODERN VAMPCO ALUMINUM WINDOWS





Photos by Roy N. Green, Inc.

In the University of Florida's new medical sciences building, the J. Hillis Miller Health Center, VAMPCO Continuous Intermediate Projected Aluminum Windows have been used most effectively to provide full natural lighting and good ventilation as well as to accentuate the modern lines of the building itself. In the United States alone today, over 7,500 schools and hospitals have VAMPCO Aluminum Window construction of one type or another. These versatile windows are available in casement, combination casement, awning, intermediate projected, window wall of varying sizes and thicknesses, heavy construction, glass block and custom-designed types. Find out how VAMPCO's special designing service can help you solve your unusual building problems most economically and efficiently . . . mail coupon below today!

## VALLEY METAL PRODUCTS CO.



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# How to add quality to the 3 most important rooms in the house

(without adding cost)

Because the kitchen, bathroom, and utility room (or basement) are such "busy" rooms, they usually show the first signs of wear.

But signs of wear can be delayed for years—simply by specifying the very finest fixtures and material available for these important rooms. And that's where Crane advanced styling and quality can help you the most.

In plumbing, for instance, Crane offers a beautiful line of Dreyfuss-designed fixtures in gleaming white and seven luxurious colors. All fixtures are available with Dial-ese controls that close with the water pressure (not against it) and prevent dripping.

And for the kitchen, Crane offers the

widest selection of distinctive kitchen sinks on the market. Also steel kitchen cabinets in gleaming white and four colors for a lifetime of beauty and convenience.

In heating, Crane offers a complete line of Sunnyland forced air furnaces and air conditioning. A full line of Sunnyday hot water boilers, so dependable that Crane guarantees their sections a full 20 years! Plus Crane Sunnybase Radiation —the heating that gives homeowners the healthful feeling of sunshine.

Yet it costs no more for Crane quality.

We think that's why so many architects specify Crane now. Why not get complete details from your Crane Branch or Crane Wholesaler.

CRANE CO. 836 South Michigan Avenue, Chicago 5, Illinois VALVES · FITTINGS · PIPE · PLUMBING · KITCHENS · HEATING · AIR CONDITIONING

# QUALITY PLUMBING AND HEATING







#### For the Bathrooms

Crane Lavatories
Crane Bathtubs
Crane Water Closets
Bathroom Accessories
Crane Sunnybase Radiation\*

#### For the Kitchen

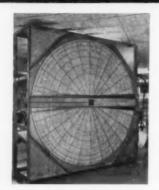
Crane Sinks
Crane Base and
Wall Cabinets
Garbage Disposers

#### For the Utility Room

Crane Sunnyday Boilers
Crane Sunnyland Furnaces
and Air Conditioning
Crane Water Heaters
Water Softeners, Pumps

\*and for every room in the house

#### PRODUCT REPORTS



#### Rotary Heat Exchanger

By storing heat (or coolness) from an exhaust air stream and using the salvaged Btu's to pre-heat or pre-cool fresh incoming air to approximately the required temperature, the *Therm-O-Wheel* rotary heat exchanger makes possible a reduction in necessary heating and cooling equipment and significant savings in power and fuel consumption. According to the manufacturer, heat recoveries of up to 90 per cent have been achieved at low cost and without significantly transferring the contamination in the exhaust air.

The "wheel" itself consists of an alu-

minum hub and spokes set in a heavy welded steel frame, and is driven by a gear head motor at a speed of 20 rpm. Galvanized hardware cloth and aluminum rods are used to hold the aluminum wool, which is the heat exchange element, in place between the pie shaped segments formed by the spokes. Pie shaped cutoffs of hard felt bonded to steel separate the counterflowing air streams, while perimeter seals of hard felt bonded to steel and side seals of neoprene are employed to eliminate leakage.

Standard Therm-O-Wheels range in size from a 4 ft diameter unit designed to handle 3000 cfm each way to a 10 ft unit which handles 20,000 cfm. The units may be installed on floor or ceiling of the area being ventilated, or mounted on the roof of the building. Installations range from comfort applications in schools, hospitals, theaters and similar buildings to industrial applications in which exhaust gases may reach extremes of heat or cold. Thermowheel, Inc., P. O. Box 577, Far Rockaway, N. Y.



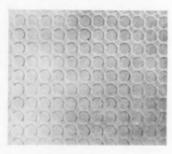
# For a better laundry call in Thomy --- early

For the best use of space, laundry equipment and your time, call in Troy early on your laundry planning. Troy knows the problems of hospital, hotel and institutional laundries from long experience. They'll put that knowledge to work for you by submitting a detailed laundry layout based on direct work flow. Troy will also make detailed equipment recommendations.

Free Troy Survey Service is most valuable to you and your client while plans are still in the early stages. Mail the coupon today!

TROY LAUNDRY MACHINERY Division of American Machine and Metals, Inc. Dept. AR-1157, East Moline, Illinois					
☐ Please send free laundry layout se	literature and ervice.	details on Troy  Hospital			
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"World's Oldest Builders of Power Laundry Equipment"



#### Non-Modular Suspended Ceiling

Through the combination of a new suspension system and a unique circular louver design, the Infinilite syspended ceiling forms a single, uniform panel that stretches from wall to wall sans seams, overlapping edges or visible means of support. The 24 by 25 in. interlocking panels are joined to each other by clear plastic clamps, and are supported on 24 in, centers in both directions by clear plastic hangers which also engage a brightness control ring in the louver cell. Because the circular louvers eliminate a visible module and the panels are easily cut, the ceiling fits into any shape room. The polystyrene panels have a light transmission value of 83 per cent, with exceptionally low surface brightness; and the circular louver configuration is said to provide inherent acoustical control. Standard finish is light stabilized white, but colors and metal finishes are also available on special order. Integrated Ceilings, Inc., 9011 Beverly Blvd., Los Angeles 48, Calif.

(More Products on page 292)



Elevator doors open quickly to unload passengers



Doors stay open until last passenger leaves



No door threats here-doors remain motionless until car is loaded





**Beautiful Harrison Park Apartments** 

in East Orange, New Jersey, feature Westinghouse Operatorless Elevators with tenantpleasing Traffic Sentinel doors. Photos above were taken on location.

Architect: Romolo Bottelli, Jr., A.I.A. Harrison Park, Inc.—A. H. Padula, Pres. Harrison Park Construction Co., Inc. W. T. Gotelli, Pres.

Frank H. Taylor & Son, Inc. -Managing Agents

Sentinel doors are a boon to buildings that require fast and courteous traffic handling. This means any sizable building, new or existing, commercial or residential.

Traffic Sentinel, a Westinghouse original development, is an electronic device which minimizes the length of time doors remain open at floors to achieve automatically the most efficient loading and unloading of cars. The lighter the traffic, the shorter the door-open time. When traffic is heavier, door-open intervals adjust autoelimination of "poor elevator service" complaints -and a superior performing elevator system to which tenants and building management alike can point with pride. Ask the Westinghouse Elevator Division representative nearest you to show you operatorless elevators with Traffic Sentinel in operation.

> YOU CAN BE SURE ... IF IT'S Westinghouse

J-98751 AA

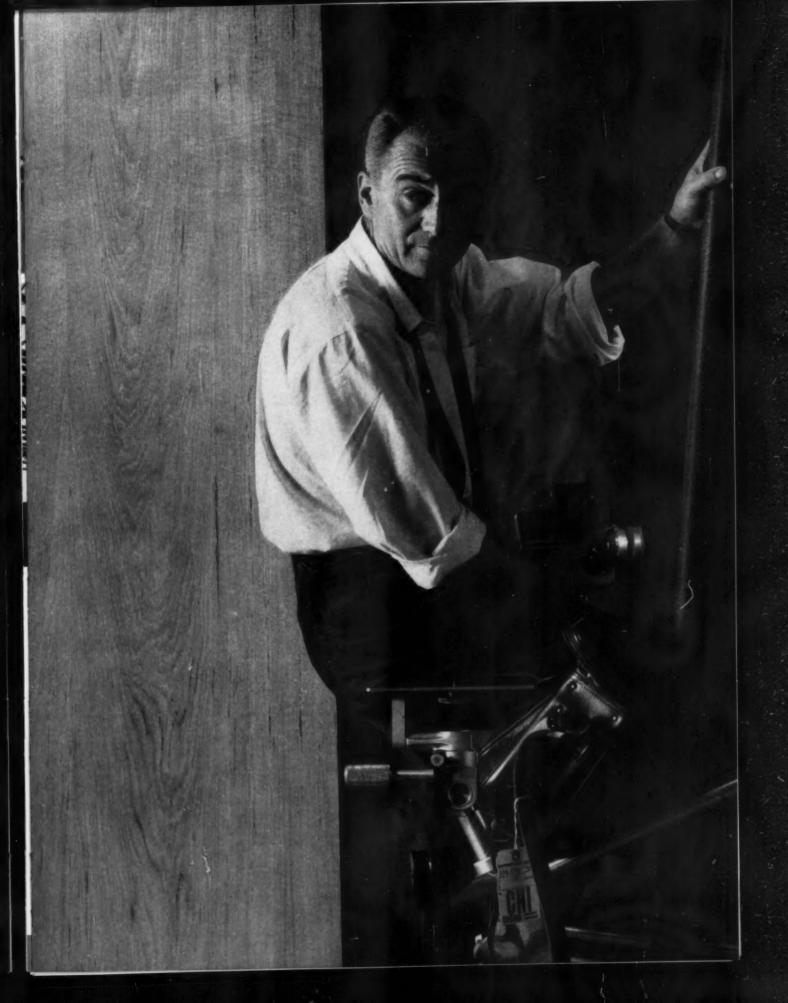


#### Teak, background for elegance...a spirited graciousness

■ Dick Boyer, one of today's truly fine photographers, draws heavily upon the supreme elegance of a panel of Teak veneer by Stem for this self-portrait. "When we seek to impart a certain deft touch of sheer quality to a photograph, a richly done background of fine, rare wood has a way of accenting the elegance of a setting." In a living or working area, as in photography, rare wood from the forests of the world makes its noble presence felt by everyone who enters. Teak veneer, as only Stem can produce it, is that kind of material. Through the catalytic artistry of the architect, superb wood paneling and graceful living strike up a happy match. Wherever it is used, this incomparable wood casts a shadow of its glorious past, and welds substance and spirit into exciting unity. Where there is rare wood, there is a spirited graciousness—a strength and beauty that dwell in every ripple of its meticulously finished grain. And yet, beautiful wood is the essence of peace; it brings serenity to a room in a way that is all its own. Now, Stem brings you, through the magic of modern factory methods, all the nobility, splendor and lifetime permanence of the finest veneer that tradition knows. And you can afford to be generous with this wood, for the cost is low.

Chester B. Stem, Incorporated 185 Grant Line Road New Albany, Indiana New York—Chicago—Dallas—Los Angeles

## RARE WOODS FROM STEM





The beauty of terrazzo endures-if Huntington Terrazzo Seal is used to protect the floor. Even after years of hard wear, a Huntington protected terrazzo floor will maintain its original color and beauty! Huntington Terrazzo Seal provides a nonslippery, waterproof surface. It simplifies maintenance, preserves the surface against excessive cracks and chipping, and prevents damage from improper cleaning methods.

Easy to apply, Huntington Terrazzo Seal dries in twenty minutes. Floors can be used after 4 hours. Dirt, or even grease and chemicals, won't harm or stain terrazzo or marble that is protected with Huntington Terrazzo Seal.

If the floors you specify are terrazzo-keep them beautiful by specifying Huntington Terrazzo Seal.

#### **Huntington Terrazzo Seal:**

- · Exceedingly durable.
- · Dries in twenty minutes, ready for use in about 4 hours.
- · Protects all terrazzo and marble floors.
- · Provides a safe, nonslippery floor surface.
- · Protects floors from stains.
- · Prevents damage from improper cleaning methods.

#### HUNTINGTON



LABORATORIES

Philadelphia, Pennsylvania

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#### WRITE TODAY FOR INFORMATION AND PRICES

#### HUNTINGTON LABORATORIES, INC. **Huntington**, Indiana

☐ Please send me free information on Huntington Terrazzo Seal. Please have your representative call.

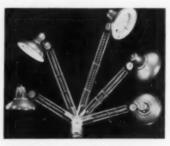
NAME. FIRM\_ ADDRESS\_

CITY STATE PRODUCT REPORTS



**Ball Penetration Apparatus** 

A new ball penetration apparatus measures the consistency of fresh concrete by a method which is said to be comparable to the conventional slump test in accuracy, but faster and simpler. Made in accordance with ASTM Specification C-360, "Ball Penetration in Fresh Portland Cement," the device consists of a cylinder with a ball-shaped bottom and a handle weighing 30 lbs. A lightweight metal frame guides the handle and serves as a reference for measuring the depth of penetration of the ball. Concrete may be tested either in the forms or in a suitable container. Twice the ball reading is approximately equal to the slump of concrete. Soillest, Inc., 4711 W. North Ave., Chicago 39,



Glide-Action Lighting Unit

A new lighting unit which readily assumes almost any working position by gliding back and forth on its stem and rotating at the head is expected to find wide application by draftsmen, architects, engineers, artists, jewelers and others who require high level lighting over working areas. In addition to its flexibility of positioning, the Trombolite is said to achieve improved illumination by combining fluorescent and incandescent lighting in a single fixture. Amplex Corp., 111 Water St., Brooklyn 1, N. Y.

(More Products on page 296)







# AMBRIDGE STEEL JOISTS speed construction of another modern school

The modern one- and two-story school building shown above is a good example of the use of open-web steel joists in construction of this type. Used for the roof, ceiling and floor supports of the 430' x 346' irregularly shaped steel-frame building, the USS AmBridge Steel Joists not only contribute to its structural soundness and fireproofing, but in the gym and auditorium they provide the strength needed to carry the weight of the roof across exceptionally wide columnless floor areas.

American Bridge was contractor for the steelwork on this project. In addition to fabricating and erecting 127 tons of USS AmBridge Standard and Longspan Steel Joists with bridging, we also fabricated and erected 100 tons of structural steel for the framework of the long, wide building.

USS AmBridge Steel Joists provide rigid, lightweight and economical construction suitable for any type of floor, roof and ceiling. Their design permits maximum headroom and allows for passage of pipes, ducts and conduits in any direction. In floor construction, the ease and simplicity of handling reduces installation time to a minimum and permits other trades to begin their work promptly. For roof construction, these same advantages cut the time required to put your structure under cover.

For detailed information about the time- and moneysaving advantages of using USS AmBridge Steel Joists on your next job, contact the nearest Contracting Office, or write direct to Pittsburgh for a free copy of our 40-page catalog.

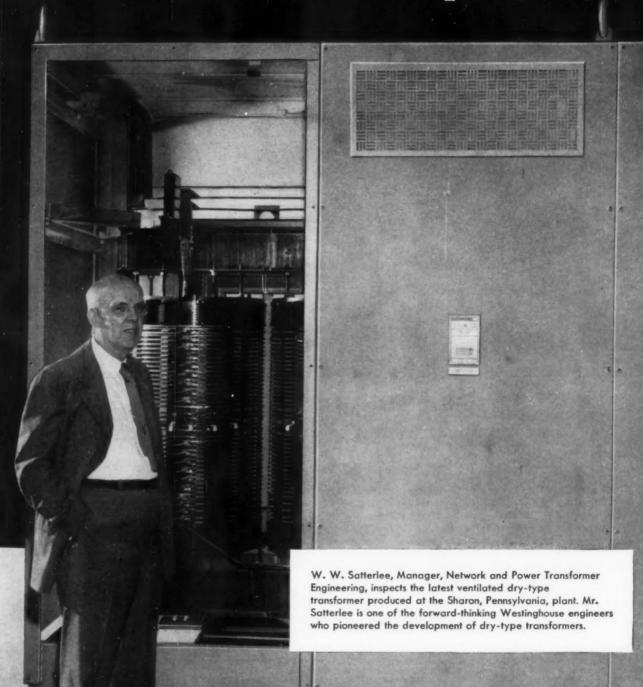
AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION • GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.
Contracting Offices in: AMBRIDGE • ATLANTA • BALTIMORE • BIRMINGHAM • BOSTON • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • ELMIRA • GARY
HOUSTON • LOS ANGELES • MEMPHIS • MINNEAPOLIS • NEW YORK • ORANGE, TEXAS • PHILADELPHIA • TITTSBURGH • PORTLAND, ORE. • ROANOKE • ST. LOUIS • SAN FRANCISCO • TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



AMBRIDGE STEEL JOISTS



# First for 20 years...



# Safe, flexible Westinghouse dry-type transformers put your power where it's needed— at the center of the load

Twenty years ago, the first ventilated dry-type transformer was put into service. It was developed and built by Westinghouse. Since that time, Westinghouse has produced ventilated dry-type transformers with a total capacity of 5% million kva.

Fifteen years ago, the first sealed dry-type transformer was installed. This, too, was a Westingl.ouse development. Now, over 325 thousand kva of Westinghouse sealed dry-type transformers are in service.

This is the experience that stands behind every Westinghouse dry-type transformer—experience that has contributed to such factors as:

Safety—Westinghouse dry-type transformers need no vaults. There are no insulating liquids; no danger of either primary or secondary explosions.

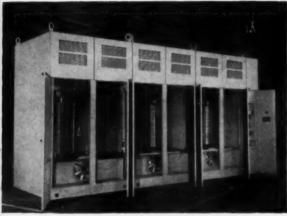
Reduced installation costs—Requiring no special fire and explosion protection, Westinghouse drytype transformers can be balcony-mounted. This not only reduces the original costs, but frees valuable floor space for other uses.

Reduced maintenance costs—Westinghouse dry-type transformers require little maintenance; no liquid to filter or replace.

Flexibility—Westinghouse dry-type transformers are flexible, can be located near the center of the load, with shortened secondary leads.

J-70830

**POWER-UP!** Lengthy and overloaded secondary leads rob your equipment of power, steal its efficiency. If motors, lights and other equipment perform sluggishly or unevenly, it's a sign of voltage drop . . . And it's time to POWER-UP! Westinghouse dry-type transformers will shorten those secondaries, put your power where it's needed—at the center of the load. Ask your Westinghouse representative or your utility power sales engineer for specific recommendations to fit your problem.



This 7,500/10,000-kva ventilated dry-type unit substation transformer is the largest ever built. This unit utilizes Class B insulation, reducing fire hazards and eliminating danger of explosions.



This 3,000-kva sealed dry-type unit substation transformer, with high-voltage terminal chamber and provision for connection to low-voltage switchgear, is the largest ever manufactured.



# Hallmark Cards

"wall of windows" building glazed and sealed with



PRESSTITE

Architect: Welton Becket, Los Angeles, San Francisco, New York

No. 162 Tape

The structural design of this handsome, well-lighted "house of glass" (home of famous Hallmark Cards) called for lots of glazing and sealing. Structural movement demanded a permanently elastic sealer that never hardens, chips or slumps.

Presstite No. 162 Tape was used throughout. Windows were glazed on the site (see drawing below). Porcelain panels were similarly sealed at the manufacturer's plant and shipped to the site.

No. 162 Tape remains pliable and adhesive, always assuring a tight, easy-to-apply seal against all kinds of weather... and is just one of many Presstite sealing and caulking compounds for window glazing, general caulking, expansion joints and curtain wall construction.

WRITE for working samples, literature, technical data.



PRESSTITE
SERVING COMPOUNDS

PRESS

E-KEYSTONE

COMPANY

A Division of AMFRICAN-MARIETTA COMPANY 3748 Chouleau Ave. St. Louis 10, Mo.

#### PRODUCT REPORTS



#### **Integrated Ceiling System**

In effect a large grid hung below the actual ceiling, Smithcraft's Integrated Lighting incorporates lighting, acoustical control, and structural header sections to receive movable partitions in a single system which also camouflages the structural members and services located above it. The transverse members of the grid are fiberglass-filled perforated metal shells that provide acoustical control; the longitudinal members contain the wiring and circuiting necessary to operate the lamps that span between them. Vertically movable recessed grooves in the lower surfaces of the longitudinal members receive and support movable partitions, and the transverse baffles may also be interchanged with members designed to receive partitions. Visual comfort is achieved by the use of low brightness (120MA) lamps, and by the 45 degree shielding provided by the baffles. The system module is determined by lamp length and spacing, but because the transverse members are removable, access areas wider than the gap between baffles can be quickly obtained, making re-lamping - and maintenance of other services - as easy as climbing a ladder. Developed for the Connecticut General Life Insurance Company by Skidmore, Owings and Merrill, architects, and Syska and Hennessy, Inc., mechanical and electrical engineers, the new lighting-ceiling design is being marketed by Smithcraft Lighting, Chelsea 50, Mass.





#### Quiet the noise . . . add architectural beauty with a Johns-Manville Permacoustic Ceiling

There's more value for the money in Johns-Manville Permacoustic units. You eliminate disturbing noise and beautify the ceiling at the same time.

Johns-Manville acoustical ceilings soak up noises like a sponge soaks up water. They deaden noise at its source, absorb it before it spreads. Over-all efficiency increases because of a general reduction in errors that result from noise distraction and nervous strain.

The textured finish of a Permacoustic

ceiling is a decorative accent in architectural design. In conference rooms, executive offices, restaurants, banks, schools, etc., it complements the various components of interior decoration. Permacoustic is made of mineral wool, noncombustible fibres. You reduce fire hazard too.

Take advantage of the services of J-M's staff of acoustical engineers, located in the principal cities. They will gladly make analyses and give specific recommendations on your acoustical problems.

Before you decide about acoustical ceilings, get the facts about Johns-Manville. For a free copy of booklet "Sound Control," write Johns-Manville, Box 158, New York 16, N.Y. In Canada, write 565 Lakeshore Road East, Port Credit, Ontario.





Johns-Manville

# MILCOR STEEL



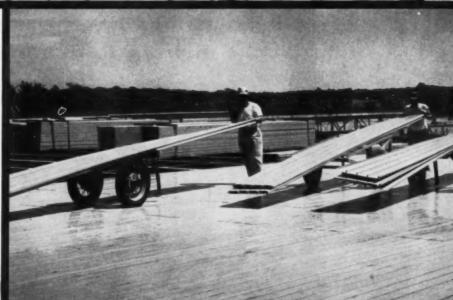
Easy installation of Milcor Steel Roof Deck helped save time in getting the Lincoln plant in Novi ready to produce 1958 models. The light-weight deck afforded additional savings on size and cost of structural members.

The protective value of Milcor's exclusive Bonderized, bakedenamel primer resists mars and scratches in shipping — in hoisting — and in construction! It stands up under workmen's heavy shoes, carts, wheelbarrows, asphalt buckets, and countless other factors of building traffic.

ARCHITECTS AND ENGINEERS Smith, Hinchman & Grylls Associates, Inc., Detroit

GENERAL

W. E. Wood Company, Detroit



# **ROOF DECK**

## 250 squares a day!

25,000 square feet every day — that's getting under cover in a hurry! Ford Motor Company did it on the Lincoln Motor Division Plant in Novi, Michigan.

Steel Roof Deck was chosen for this job because it can be laid fast in any weather in which a man can work—no costly delays due to the effects of rain, snow, or zero weather. Time is vital in any business, but especially in the expansion of the automobile industry—this plant had to get into production fast.

Speed is the rule on any Milcor Deck job. 24-inch width means less welding. Lengths up to 28'6" cover faster, Die-set ends make fitting easy and rapid. 3/4"-wide ribs permit welding from the top.

See the Milcor Roof Deck Catalog in Sweet's — Section 2d/InL. Or write for a copy of Catalog 240.

## MILCOR® STEEL ROOF DECK

... available in three different sizes



"" Section

Wide rib distributes metal for greater
structural efficiency — gives higher

section properties per pound of steel.

"C" Section
Carries normal roof loads over spans up to 20"! Offers freedom of design.



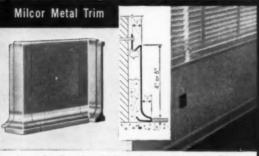
Gives clients electrical flexibility that keeps pace with the constant increases in electronic office equipment. Does this at savings in steel, footings, time, overhead. See Sweet's, Section 2 a/In —or write for your own copy of Catalog 270.



Rigid centering for concrete on spans up to five feet. Quickly installed — eliminates scaffolding — uses as much as 20% less concrete than flexible centering — permits monolithic finishing, without costly topping. For planning help, see Sweet's, Section 2F/1n — or write for copy of Catalog 245.



Clean, space-saving units have built-in window trim and integral enclosures for convectors, radiators, and air-conditioning equipment. Available as factory-welded assemblies or knocked-down for assembly on the job. See Sweet's, Section 12a/InL—or write for your copy of Catalog 102.



A complete line of steel trim in designs, sizes, and weights for every exposed interior detail. All afford permanence, fire-safety, and resistance to use and abuse. See Sweet's, Section 12a/InL — or write for your copy of Catalog 102.



#### INLAND STEEL PRODUCTS COMPANY

Dept. W-4033 West Burnham Street - Milwaukee 1, Wisconsin
ATLANTA • BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT

RD-

## Here's the answer to your

# BIG

#### SPACE HEATING PROBLEMS

Regnor-Olson

STAINLESS STEEL DIRECT FIRED HEATERS

These units are designed for heating factories, warehouses, garages, airplane hangars, gymnasiums and other large open areas. They pick cold air up off the floor, distribute heated air overhead at high velocity—either direct or thru

ducts. In addition to space heating installations, Reznor-Olson heaters are well-suited for use in make-up air systems and in drying and other process applications.

Reznor-Olson heaters are available in ten sizes — 400,000 to 2,000,000 Btu — with gas, oil or dual-fuel burners. They may be floor mounted for top discharge or suspended for down-blast or horizontal discharge.

#### New Bulletin gives Complete Specifications

Complete specification information — including dimensions, control details, temperature rise, air delivery and fuel consumption — is included in a new bulletin, F-57A-RO. If you don't have a copy of this bulletin in your files, just fill out and mail the coupon below. Do it today.



HEZMOR



Reznor Manufacturing Company, 62 Union St., Mercer, Pa.

Please send me a copy of your bulletin F-57A-RO which gives complete specification data and construction details on Reznor-Olson direct fired heaters.

Name			
Company			
Street.	 	 	

#### OFFICE LITERATURE

(Continued from page 224)

#### **Luminous Ceilings**

(A.I.A. 31-F-2, 39-B) Describes and gives installation details and specifications for seven types of luminous ceilings. 8 pp. Luminous Ceilings Inc., 2500 W. North Ave., Chicago 47, Ill.\*

#### Adhesives, Coatings, Sealers

... for Building Construction. Data file folder contains catalogs and data sheets offering complete technical and application information on Weatherban sealers. Adhesives and Coatings Div., Minnesota Mining & Mfg. Co., 423 Piquette Ave., Detroit 2, Mich.\*

#### Circuit Breaker Load Centers

Bulletin GEA-6661 contains a pictorial index of circuit breaker load centers for residential and light commercial applications, along with dimensional and knockout diagrams and an accessory checklist. 12 pp. Circuit Protective Devices Dept., Distribution Unit, General Electric Co., Plainville, Conn.\*

#### Valance, Cornice and Cove Lighting

Includes general rules and construction details for the design and installation of valance, cornice and cove faceboards, and discusses types and location of light sources. 8 pp. 10¢. Westinghouse Lamp Division, P. O. Box 388, Bloomfield, N. J.\*

#### Parawing Lighting Fixture

(A.I.A. 31-F-2) Includes descriptions, illustrations, photometric data and installation details for *Parawing* and *Paralume* lighting fixtures. 8 pp. *Day-Brite Lighting*, *Inc.*, 5411 Bulwer Ave., St. Louis 7, Mo.\*

#### Intermediate Steel Windows

(A.I.A. 16-E) Photographs and drawings supplement descriptive material on four types of intermediate windows—projected, awning, casement and combination. A complete guide to window types and sizes, and typical installation details, are also included. 28 pp. Fenestra Inc., 2250 E. Grand Blvd., Detroit 11, Mich.\*

#### **Prestressed Concrete Tanks**

Technical bulletin T-19 gives engineering data and formulae for the design of prestressed concrete storage tanks. 8 pp. The Preload Co., 211 East 37th St., New York 16, N. Y.

(More Literature on page 306)

# NEWS ABOUT SEAPORCEL ARCHITECTURAL PORCELAIN



#### E. W. BROOME JUNIOR HIGH SCHOOL

Rockville, Montgomery County, Maryland

Over 11,000 square feet of SEAPORCEL veneer panels on all elevations.

Spandrels and canopy facings are in green and yellow stipple.

Architect: Rhees Buchet, Washington, D. C. General Contractor: J. D. Hedin Construction Co., Washington, D. C.



#### SEAPORCLAD\* Laminated Curtain Walls for the MERCANTILE ASSURANCE BUILDING

Ste. Hyacinth, Quebec, Canada

More than 600 SEAPORCLAD panels, bluish grey in color were used in cladding this handsome building. Panels consist of 18-gauge porcelain enamel steel face, ¼" cement-asbestos-board core, and a 20-gauge electro-galvanized steel back. Manufactured by the Seaporcel Division, General Steel Wares, Ltd. London and Toronto, Ontario, Canada

Architects: David and David, Montreal, Canada

for some job somewhere, you can use SEAPORCEL®

Seaporcel

ARCHITECTURAL PORCELAIN ENAMEL

Complete Engineering and Erection Departments

A. F. of L. Metal Fabricating and Enameling Plant, Member: Porcelain Enamel Institute

Write for Brothure 11-2 SEAPORCEL

METALS, INC. 28-20 Borden Avenue, Long Island City 1, N. Y.

Reg. U.S. Pat. Oil

SEE OUR CATALOG IN SWEET'S These licensed manufacturers fabricate SEAPORCEL products in the countries listed below. Personnel trained in SEAPORCEL's U. S. plant.

IN AUSTRALIA: Metters, Ltd., Sydney, New South Wales
A. Simpson and Son, Ltd., Adelaide,
South Australia

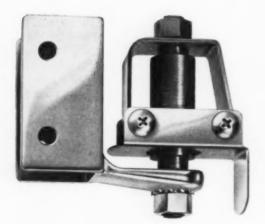
IN AUSTRIA: Kleiner & Fleischmann, Moedling N. Oe. Austria IN BRAZIL: Rheem Metalurgica S.A., Rio de Janeiro, Brazil IN CANADA: General Steel Wares Limited, London and Toronto, Ontario, Canada

IN CHILE: Fabrica de Enlozados, S.A., "Fensa", Santiago, Chile IN FRANCE: Societé Equipement Menager Japy, Paris, France IN GREAT BRITAIN: Edward Curran Engineering Limited, Cardiff, Wales

IN SWITZERLAND: Metallwarenfabrik Zug, Zug, Switzerland

# HERE'S THE BY NEWS IN CONCEALED HINGES

Here's the Nicholson concealed gravity hinge for toilet partition doors that's been making so much news...



- NO COMPLICATED ASSEMBLY REQUIREMENTS . . . complete unit can be installed quickly and easily at job site.
- NO NEED FOR SPECIAL TOOLS...one adjustment provides for any desired position of door at rest...aligns door with adjacent compartments when floor isn't perfectly level.
- NO PROJECTING PARTS... entire unit is concealed within door panel... parts are protected against dirt, moisture and vandalism.
- NO LIMITATIONS TO USE . . . hinge will open or close door in clockwise or counter-clockwise direction, on either right or left-hand posts.
- NO POSSIBILITY OF BENDING DURING INSTALLATION . . . curled ends of hinge column strap butt solidly against inside of panel . . . panel won't bend inward when bolts are tightened.
- NO SPRINGS TO FATIGUE . . . double-cam mechanism assures long hinge life . . . self-contained oil reservoir bathes cam surfaces.

For a gravity door hinge that can save time and money at installation, eliminate trouble and adjustment problems...specify Nicholson. W. H. NICHOLSON AND COMPANY, 12 OREGON ST., WILKES-BARRE, PA. Sales and Engineering Offices in 98 principal cities.

## Check these important features!

- fast, easy installation
- · simplicity of adjustment
- attractive appearance
- structurally sound
- flexibility of position
- long life







#### GE looks at coal as low-cost fuel

#### For low-cost steam generation and supply availability, GE burns coal in Louisville

To generate all steam necessary for process work and heating requirements at General Electric's Major Appliance Division in Louisville, Ky., GE's power plant burns coal the modern way. Coal was chosen after a fuel cost survey disclosed that, in the Louisville area, coal would give GE the lowest-cost steam generation of all fuels. In addition, mechanization of GE's power plant has facilitated coal handling and ash removal while overcoming the possibility of air pollution.

#### Consult an engineering firm

If you are remodeling or building new heating or power facilities, it will pay you to consult a qualified engineering firm. Such concerns familiar with the latest in fuel costs and equipment—can effect great savings for you in efficiency and fuel economy over the years.

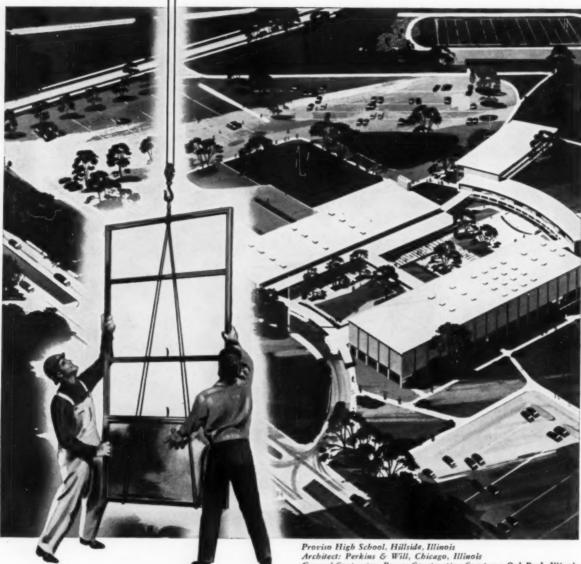
#### Facts you should know about coal

Not only is bituminous coal the lowest-cost fuel in most industrial

areas, but up-to-date coal burning equipment can give you 10% to 40% more steam per dollar. Today's automatic equipment can pare labor costs and eliminate smoke problems. And vast coal reserves plus mechanized production methods mean a constantly plentiful supply of coal at a stable price.

For additional case histories on burning coal the modern way or for technical advisory service, write to the address below.

# Now...TRUSCON



## General Contractor: Power Construction Company, Oak Park, Illinois

# REPUBLIC



World's Widest Range of Standard Steels

# VISION-VENT WINDOW WALLS

# ...made of Aluminum

There is a bright new look at Proviso High School, Hillside, Illinois. Construction now under way features Truscon Vision-Vent Window Walls made of aluminum, with Truscon Projected Aluminum Windows.

Truscon Vision-Vent® Window Walls made of aluminum are a continuation of the highly successful and popular window wall as originally designed, developed, and produced in steel by Truscon.

Vision-Vent is Truscon's exciting method of fast, economical wall construction. Vision-Vent goes up like other curtain-wall systems-fast and easy! And offers this important plus-it's a wall with the window already in place, completely contained within the depth of windowframing members.

Truscon Vision-Vent Window Walls made of aluminum feature a new concept of horizontal mullions to provide ample strength and weather-

ing with adequate provision for expansion and contraction.

The secret is vinyl gaskets at vertical mullions, with positive provision for lateral expansion. This engineering feature, combined with aluminum, practically eliminates maintenance care.

Truscon Vision-Vent Window Walls, only 11/2" thick, increase floor space up to 5%, reduce weight on structural frames and foundations. Panels have an insulating value equal to that of an ordinary masonry spandrel; "U" Factor .20. They retain interior heat; they provide for air-conditioning efficiency.

In planning, designing, building-Truscon Vision-Vent Window Walls offer many advantages in all types of single and multi-story applications. Truscon window engineers will be glad to work with you in developing design details and costs. Call your nearest Truscon representative, or write today.



REPUBLIC STEEL LOCKERS are strong, sturdy, rigid. They combine smart styling and design with simple construction, for fast, easy installation. They provide full inside-locker roominess, sani tation and safety. And they are Bonderized for extra protection to resist moisture, rust, scratches



TRUSCON "O-T"® STEEL JOISTS offer predictable and dependable load-bearing capacity. Every Truscon "O-T" Joist-Short-Span Series-is quality protected and backed by the Steel Joist Institute Seal of Approval. Be safe, be sure. Specify Truscon "O-T" Steel Joists far your job.



NEW! 24-INCH-WIDE TRUSCON FERROBORD® is now available in a new design and in lengths up to 32'6". It roofs large areas quickly. Straight lay means several crews can roof without delay and with all work done from above. 24-inch Truscon Ferrobord is light, strong, fire-resistant.

Write for additional information

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION DEPT. C-4275 3110 EAST 45th ST. . CLEVELAND 27, OHIO

Please send additional information for the following Republic

☐ Truscon Vision-Vent Window Wall ☐ Truscon"O-T"Steel Joists

☐ Truscon 24-Inch-Wide Ferrobord Republic Steel Lockers

Company

Address

Zone State

# ONE FIXTURE: 8 sq. feet of unobstructed illumination

#### NEW electro silv-a-king surf-a-lite

Our new Surf-A-Lite achieves a uniform luminosity over its entire 2 ft. x 4 ft. surface—free of visible metal bands and dark islands. The entire fixture presents a smooth appearance with no visible screws or latches when the "Magic Frame" door is closed.

Through the use of various diffusing media the desired comfort ratio can be obtained for any installation. And when used with our exclusive ½" sq. "Poly Cube" polystyrene louver it achieves a glowing, jewel like appearance which you will find adds to the beauty of the most luxurious interior.

SHALLOW 31/2" FIXTURE mounts flush to ceiling ... modular design for unlimited variety of lighting patterns.

Available in two and four lamp units, 12", 17", or 24" wide—4-ft. or 8-ft. long...in ½" sq. "Poly-Cube" polystyrene louver, pattern #70 low brightness lens panel or Alba Glass diffusers with metal or plastic sides.

Complete specification and installation data available upon request.



#### ectro silv-a-king corporation

1535 S. Paulina Street, Chicago 8, III. Spruce and Water Sts., Reading, Pa.

ERS AND MANUFACTURERS OF THE FINEST IN LIGHTING

#### OFFICE LITERATURE

#### **Gratiot Community Hospital**

(A.I.A. 4-K) Flexicore Facts No. 76 describes a representative example of the use of precast concrete floors and roofs for hospitals. Construction details are included. 8 pp. Flexicore Co., Inc., 1932 E. Monument Are., Dayton 1, Ohio.\*

#### Lighting Equipment

Bulletin 2697 covers Crouse-Hinds floodlights, searchlights, aviation lighting, industrial lighting and fixture Condulets. including the newly introduced mercury vapor floodlights and Vapor Master lighting fixtures. 52 pp. Crouse-Hinds Co., Wolf and Seventh North Sts., Syracuse, N. Y.

#### Welded Wire Fabric (A.I.A. 4-E-2)

Revised design manual covers use of welded wire fabric in reinforced concrete building construction, with construction pictures, diagrams, tables and comprehensive design data. 44 pp. Wire Reinforcement Institute, Dept. 50, 1049 National Press Bldg., Washington 4, DC

#### Millwork Specifications

Guide forms for completion by the specification writer cover complete recommended millwork specifications, including explanatory notes and data. Ten 4 page sets are bound in perforated tablets with supplementary data printed on the inside covers for permanent reference. Architectural Woodwork Institute, 332 S. Michigan Ave., Chicago 4, Ill.

#### Technical Data on Southern Pine

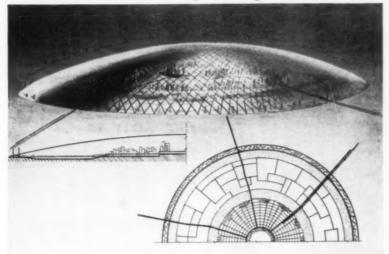
(A.I.A. 19-A-1) Grade Use Guide gives recommended grades for all types of construction, a brief description of all grades, nominal and dressed dimensions for all lumber items, and working stresses for solid and laminated lumber. 16 pp. Southern Pine Assoc., P. O. Box 1170, New Orleans, La.

#### Resilient Floor Covering Samples

Offers actual samples of Robbins' resilient floorings, with specifications giving information on materials, preparation of floors, installation and maintenance. Types of materials, patterns, color designations, standard gauges and standard sizes are listed in a master chart. Robbins Floor Products, Inc., Tuscumbia, Ala.\*

(More Literature on page 308)

#### MARS outstanding design SERIES



#### 21st century city

The shallow, plastic-faced, Geodesic dome makes this city of the future look strange to 20th century cyes. But designer Philip H. Seligson has combined practical economics with creative thinking in committing his concept to paper. Industries are located at the outer circumference of the city; discharge their smoke through stacks that pierce the dome. Central air conditioning controls the temperature-winter or summer the climate is perfect. Instead of building their own four weather walls and roof, insulating them, heating and cooling them, people can build their walls merely as grilles and curtains.

No matter which of today's ideas become reality, it will be as important tomorrow as it is today to use the best of tools when pencil and paper translate a dream into a project. And then, as now, there will be no finer tool than Mars-from sketch to working

drawing.

Mars has long been the standard of professionals. To the famous line of Mars-Technico push-button holders and leads, Mars-Lumograph pencils, and Tradition-Aquarell painting pencils, have recently been added these new products: the Mars Pocket-Technico for field use; the efficient Mars lead sharpener and "Draftsman's" Pencil Sharpener with the adjustable point-length feature; and-last but not least-the Mars-Lumochrom, the new colored drafting pencil which offers revolutionary drafting advantages. The fact that it blueprints perfectly is just one of its many important features.

> The 2886 Mars-lumograph drawing pencil, 19 degrees, EXEXB to 9H. The 1001 Mars-Technico push-button lead holder. 1904 Mars-lumograph imported leads, 18 degrees, EXB to 9H. Mars-Lumochrom colored drafting pencil, 24 colors.



at all good engineering and drawing material suppliers





Philip H. Seligson, New York designer, one of the winners in the 1957 MARS Con-test. Mr. Seligson's project, "21st Century City," is featured in the MARS presentation on this page.

## KS announces new design contest

The MARS Outstanding Design Con-test of 1957 created such wide interest that MARS Pencils is sponsoring another contest for 1958.

If you are an engineer, architect or student, the MARS contest offers you a 'showcase." It provides you with a valuable opportunity to have projects you designed shown in leading magazines where they will be seen by the men in your profession.

You are invited to send in your projects. For every submission that is accepted

# MARS pencils will pay you \$

This \$100 is paid you simply for the right to reproduce your project in the MARS Outstanding Design Series. There are no strings attached. You will be given full credit. All future rights to the design remain with you. You can reproduce it later wherever you like and sell or dispose of it as you wish.

The subject can be almost anything . aviation, space travel, autos, trains, buildings, engineering structures, household items, tools, machines, business equipment, etc. Projects will be selected on the basis of appeal to design-minded readers, broad interest, attractive presentation. Do not submit a design that is in production. In fact, the project does not need to have been planned for actual execution. It should, however, be either feasible at present or a logical extension of current trends. It cannot be unrealistic or involve purely hypothetical alterations of natural laws.

There is no deadline for entries but the sooner you send yours in, the greater the probability of its selection for the 1958 MARS Outstanding Design Series.

#### It is Simple To Submit a Design For Mars Outstanding Design Series

Just mail in an inexpensive photostat or photocopy of the subject—one you can spare, since it cannot be returned—and a brief description.

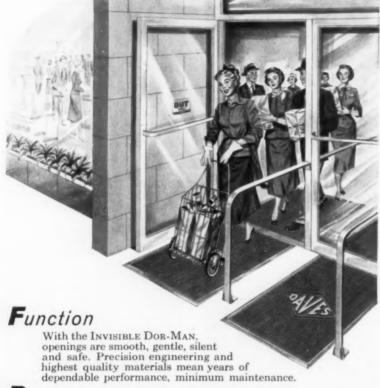
If your entry is accepted, we will ask you to send in a clear photograph or rendering of the design (so that we can make a sharp photograph) suitable for reproduction—after which your material will be returned to you.

## Send your entry to: J.S. STAEDTLER, INC.

Hackensack, New Jersey

#### F. B. V. factors...

INVISIBLE DOR-MAN AUTOMATIC DOOR OPERATORS



Beauty

Completely concealed, adapts perfectly to all modern architecture. Carpets are now available in five decorator colors and can be monogrammed or trade-marked for personalized identification. TOUCH-O-MATIC handle actuated models are custom made for all types of doors.

Versatility

Single units, double units, in-and-out pairs, carpet or handle actuated—whatever your needs, there's an Invisible Dor-Man to fit any requirement. Installation and maintenance are easy, inexpensive. You'll have the best when you select the Dor-O-Matic Invisible Dor-Man. Write for detailed information.



Manually Operated Concealed in the Floor Dor-O-Matics are available in 31 models to fit every requirement.

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DOR-O-MATIC

division of REPUBLIC INDUSTRIES, INC. 7358 West Wilson Avenue Chicago 31, Illinois

CANADA: Dor-O-Matic of Canada, 550 Hopewell Avenue, Toronto 10, Ontario EXPORT: Consultants International, 69-77 Bedford Street, Stamford, Connecticut

#### OFFICE LITERATURE

#### Westinghouse Unit Heaters

Booklet B-1523 describes the construction and application of a new line of commercial and industrial unit heaters. Illustrations and tables are included. 26 pp. Westinghouse Sturtevant Div., Dept. T-333, 200 Readville St., Hyde Park, Boston 36, Mass.\*

#### Fiber Glass Panels

Contains complete technical data and specifications for Lascolite fiber glass panels, with information on available shapes and colors. Lynch Asbestos Co., Dept. 28B, 2939 South Sunol Dr., Los Angeles 23, Calif.

#### Shortspan Open-Web Steel Joists

(A.I.A. 13-G) Provides tables of available dimensions, properties and allowable loading for Ceco lightweight steel joists, with complete specifications and recommendations for handling and erecting. 32 pp. Ceco Steel Products Corp., 5601 West 26th St., Chicago 50, Ill.\*

#### Penn Ventilators (A.I.A. 12-K-2)

Bulletin D10-58 gives detailed information on the *Domex* line of roof exhausters, including performance tables, dimensions, and detail drawings. 8 pp. *Penn Ventilator Co., Inc., Philadelphia 40*, Pa.\*

#### Calcium Chloride in Concrete

Contains specific information on the major effects of calcium chloride in concrete, a discussion of special conditions, technical data and specifications, accompanied by illustrations and charts. 40 pp. Also available is an 8 page brochure which describes in brief form the recommended practices for winter concreting recently adopted by the American Concrete Institute. Calcium Chloride Institute, 909 Ring Bldg., Washington 6, D. C.

#### Institutional Radiators

Bulletin I-57 covers product features, technical and design data, and specifications for Shaw Model I institutional radiators. 16 pp. Shaw-Perkins Mfg. Co., 201 E. Carson St., Piltsburgh 19, Pa.

#### Literature Requested

Mr. Don Hines, Architect, Masonboro Loop Rd., P. O. Box 1784, Wilmington, N. C.

Smith & Smith, Architects, First National Bank Bldg., Iron Mountain, Mich.



# Tomorrow takes form in Curtis Visioneered Planned Lighting...

New Eye Comfort® Troffer . . . with L.B.Q.\* Louver . . .

Years Ahead in Design – Performance

An eye to the future marks the difference between leadership and mediocrity in lighting design. The uniquely new Curtis Eye Comfort Alzak Aluminum Troffer is the first luminaire to have a true parabolic-shaped fin-the extruded L.B.Q. louver . . . heavy gauge aluminum fin, for durability, rigidity and strength. Curtis Eye Comfort Troffer offers highest level illumination . . . \*low brightness quality from all critical viewing angles . . . a troffer adaptable to all types of ceilings: plaster, metal pan, acoustical tile, inverted T-grid . . . new shallow depth which requires maximum recessing space of 61/2" . . . ease of maintenance, relamping and cleaning. Great new Curtis Eye Comfort Troffer is just one more in a long line of Curtis "firsts" including the design and production of Alzak Aluminum Lighting Equipment; and over 50 other Curtis contributions to the lighting industry. Write today for a demonstration of the new Curtis Troffer with L.B.Q.

@TM Curtis Lighting, Inc.

CURTIS RECESSED LUMINAIRES provide high level general illumination, low-brightness quality in the American Hardware Mutual Insurance Company Building, Minneapolis, Minnesota. Architects: Thorshov & Cerny.

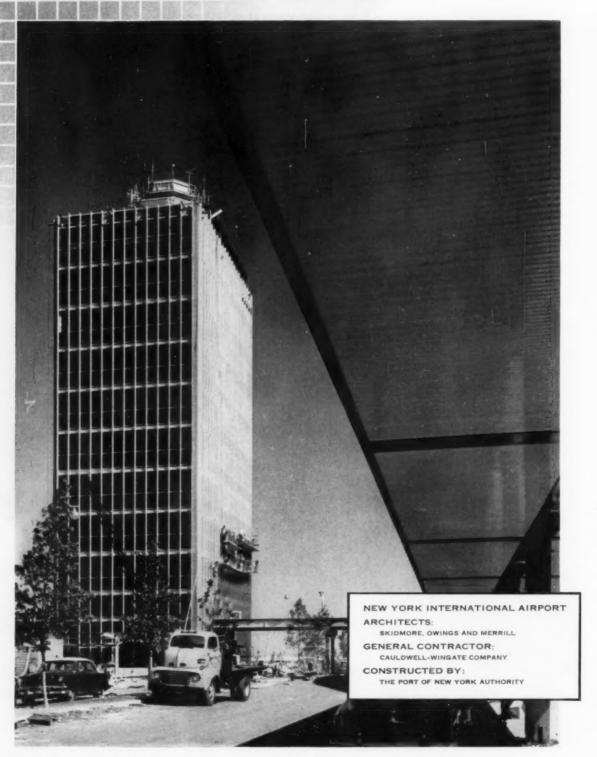


Curtis Eye Comfort Alzak Aluminum Troffer with L.B.Q. Louver Fin. Snap-on yoke and toggle bolts for easy application: New shallow depth...maximum recessing space required, 6%\*.

CURTIS

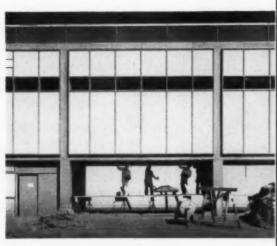
CURTIS LIGHTING, INC. 6135 W. 65th St., Chicago 38, Illinois In Canada: 195 Wicksteed Avenue, Toronto 17, Canada Visioneers in Planned Lighting®

## MODULAR DESIGN AND ..



PHOTOS BY LIONEL FREEDMAN

### CUSTOM CURTAIN WALLS





It is axiomatic in industry that the greater the number of identical parts; the lower the cost. Varying the parts by modular increments permits greater flexibility of design while retaining a degree of economy.

One of the more important parts of the building to which this industrial truth applies, is the contemporary curtain wall. Here, modular design makes feasible the use of custom curtain walls for all buildings, thus avoiding the possible monotony of "standard" designs. Standardization of parts can be achieved without standardizing buildings.

In accord with architects' specifications, manufacturing and erection techniques were developed in the shop fabrication of units requiring no cutting or fitting at the building. As specialists in custom curtain walls, regardless of the modular dimension employed, we at FLOUR CITY are skilled and experienced in providing architects with true quality features from their specifications.

The modular planning of New York Airport's International Arrival Building and adjacent Airline Wing Buildings has achieved structures with a magnificent sense of order expressed by the attractive grid of aluminum and stainless steel window enframements. Almost 53,000 lineal feet of these members were shop fabricated into unit frames and erected by FLOUR CITY—producers of only the finest metalwork since 1893.

The FLOUR CITY Ornamental IRON COMPANY



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they'll wonder where the MUSHROOM went when you use



OLD "mushroom head" and drop . unsightly expensive, out-of-date Shlagro Shear Head . . . mod space-savers!

Shlagro Shear Heads eliminate expensive mushroom heads and drop panels by allowing the steel to be completely imbedded in the floor slab, an important height-reducing advantage in single and multistory buildings.

Shlagro Shear Heads are:

economical — substantial savings in form work . . . better utilization of floor space!

time-savers — the integrating of the Shlagro Shear Head and a Shlagro or rolled column allows multi-story column erection in advance of lower floor slab pouring.

modern finished appearance — clean, sharp lines . . . flat uninterrupted surfaces with Shlagro Shear Heads.

When using Shlagro Shear Heads, you obtain freedom of design for conventional, unusual and daring projects . . . You'll appreciate the outstanding planning flexibility made possible by Shlagro Shear Heads, used with a reinforced concrete column, a rolled structural steel column, or the Shlagro Steel Square Column.



SHEAR HEAD WITH STUB FOR POURES

ROLLED STEEL

STEEL PRODUCTS CORPORATION SOMERVILLE, MASS.

Write today for your copy of the Shlagro Shear Heads Catalog, containing complete data plus tables of information to help you readily approximate what Shear heads to use in the construction of in the construction of

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- #250 SHLAGRO STOCK STEEL SHEAR HEADS
- #100 SHLAGRO STOCK STEEL ROOF TRUSSES
- #150 SHLAGRO STOCK STEEL LONGSPAN JOISTS #200 — STOCK STEEL COLUMNS — SQUARE, RECTANGULAR, CORNER
- SHLAGRO STOCK STEEL TURNTABLES
- #350 SCAFFOLDING
- #400 EGG-SHELL STEEL PLATE ROOFS
- #500 STOCK STEEL RIGID FRAMES #550 - STOCK STEEL VERTICAL MEMBER TRUSSES
- STOCK STEEL VERTICAL LIFT DOORS
- #650 NO-SHELL PRE-CAST FIREPROOF REINFORCED CONCRETE COLUMNS
- #700 STOCK STEEL FLOORSPAN GIRDERS #750 - STOCK STEEL WELDED PIPE TRUSSES

SHLAGRO STEEL PRODUCTS CORP. SOMERVILLE, MASS

#### THE RECORD REPORTS

#### ON THE CALENDAR

#### November

- 50th annual convention, National Association of Real Estate Boards Chicago
- Annual convention, Society of 3-6 Industrial Realtors - Drake Hotel. Chicago
- 1957 Building Products Exposition of the National Retail Lumber Dealers Association - Trade and Convention Center, Phila-
- 43rd annual convention, Florida Association of Architects - Fort Harrison Hotel, Clearwater, Fla.
- 8-10 Annual convention, American Hotel Association — Cleveland
- 10-16 Annual meeting, American Society of Sanitary Engineers - Fort Lauderdale, Fla.
- 11-13 Annual convention, Structural Clay Products Institute - Greenbrier Hotel, White Sulphur Springs
- 11-15 National Hotel Exposition Coliseum, New York City
- 11-16 Meeting of Board of Directors, American Institute of Architects Phoenix, Ariz.
- 13-14 Air Pollution Conference, cosponsored by Armour Research Foundation and Midwestern Air Pollution Prevention Association
- 13-15 Eighth National Conference on Standards, in conjunction with 39th annual meeting of the American Standards Association, sponsor of the conference - St. Francis Hotel, San Francisco

#### OFFICE NOTES

#### Offices Opened-

- · John Porter Clark, A.I.A., associate of Clark, Frey & Chambers, Architects, 879 North Palm Canyon Drive, Palm Springs, Cal., announces the opening of an office under his own name for the practice of architecture limited to public, institutional and commercial buildings. Office is at 169 Luring Drive, Palm Springs, Cal.
- · Don Hines, Architect, announces the opening of his office at Masonboro Loop Road, P. O. Box 1784, Wilmington,
- · Smith & Smith, Architects, Royal Oak, Mich., have opened a branch office (Continued on page 316)

Mueller Climatrol offers complete heating line

## for any home, any budget

Mueller Climatrol Traditional units first with quality features that help you sell



For every budget and every comfort requirement,

For every budget and every comfort requirement, either commercial or residential—Mueller Climatrol Traditional units stand out with features that make your homes "just a little better."

Up-draft design . . . free floating radiators . . . large, quiet blowers . . . rust-proofed steel casings . . plus a specially designed burner for each unit — all these "extras" are Mueller Climatrol standards. What's more, cooling can be added to any Mueller Climatrol heating unit easily and at Mueller Climatrol heating unit easily and at reasonable cost.

Most important, Mueller Climatrol units are backed by 100 years' experience and reputation for quality . . . enjoy top customer acceptance.

Suburbanaire line favored where cost must be considered along with quality



Mueller Climatrol has combined quality with economy in a complete line that's designed to give top comfort performance "on a budget."

In the Surburbanaire line are highboys, counterflows, horizontal and gravity units—each in practical

size ranges . . . each reflecting Mueller Climatrol's

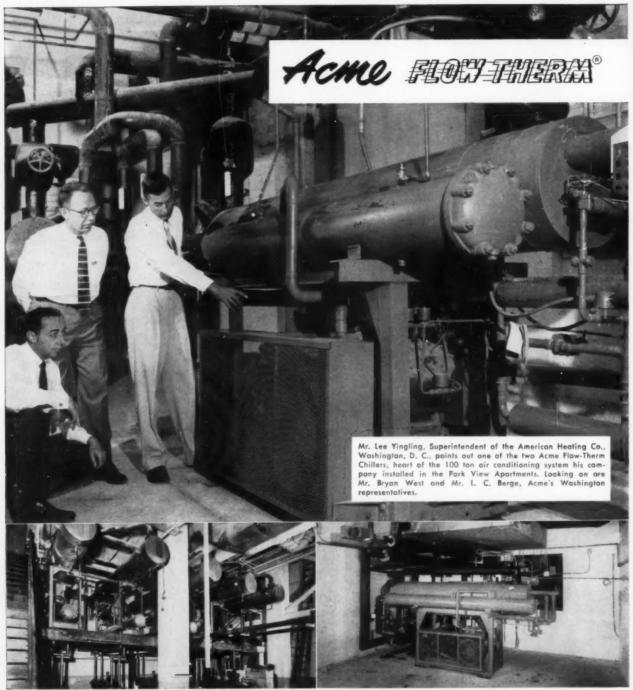
progress-pacing design throughout.

Make it a "real home" with brand-name heating equipment at low cost — Surburbanaire.

Mueller Climatrol

2058 W. Oklahoma Ave. Milwaukee 15, Wisconsin In Canada: 2490 Bloor Street, Toronto 9, Ontario





MULTIPLE INSTALLATION - Five 100 HP Flow-Therm Chillers provide the Merchants Bank Building, Indianapolis, Indiana, with 500 tons of air conditioning. This system was engineered and installed under the supervision of Mr. John Beaulieu, Illingsworth Construction and Engineering Co., Indianapolis.

HEAT PUMP INSTALLATION - Merchants Bank of Miami, Florida, utilizes this 30 ton Flow-Therm Heat Pump for yearround heating and air conditioning. The system was engineered and installed by F. H. McDonald, Inc., in cooperation with Norman M. Giller and Associates, Architects.



Air Conditioning and Refrigeration Equipment

since 1919

INDUSTRIES INC., Jackson, Michigan Manufacturers of Quality



PACKAGED CHILLERS



PACKAGED HEAT PUMPS



EVAPORATIVE CONDENSERS and COOLING TOWERS



CONDITIONERS

## the truly FLEXIBLE Packaged Chiller



## Park View Apartments look to Acme for air conditioning comfort that sells

To insure the continuing popularity of their new Park View Apartments, Washington, D.C., Dan Pollin, Inc. insisted on having the most reliable air conditioning system possible. General Engineering Associates, consulting engineers for architects Berla and Abel, specified Acme... and with good reason. They wanted a system that would deliver full capacity for peak loads throughout Washington's long air conditioning season—they wanted a packaged chiller with proven dependability, one that was compact and economical to install. They knew an Acme Flow-Therm qualified in every respect.

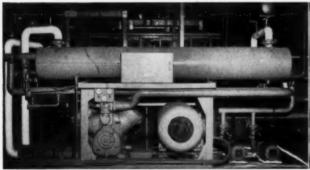
With Acme you get a more complete range of models, with capacities to fit exact job requirements. This is possible because the Flow-Therm's chief components, famous Dry-Ex Chiller and Shell-and-Tube Condenser, can be tailor-made to match compressor performance exactly—combine operating economy with maximum capacity. The Flow-Therm is the most completely engineered packaged unit in its capacity range. All controls—electrical and mechanical—are supplied complete and ready for simple installation. When you buy an Acme Flow-Therm Packaged Chiller, it arrives on the job completely assembled, ready for connection to power and liquid lines.

In addition to the normal factory tests for leaks and mechanical defects, all Acme packaged chillers are tested under full load conditions before leaving the factory. Every unit must perform satisfactorily at its nominal rating. Your guarantee of this tested operation is the new Acme Certificate of Performance, first in the industry. This assures the engineer and contractor, who specify and install Acme equipment, that Acme means dependability.

Acme Certificate of Performance issued on all Flow-Therm and Flow-Cold packaged liquid chillers, 3 through 150 tons.

quiring remote compressors.

PROVEN FLEXIBILITY — Acme Flow-Therm Packaged Chillers have been proven in varied types of installations throughout the country. They have met all air conditioning, heat pump, and industrial processing requirements. Flow-Therm chillers are available in models complete with compressor, in a range from 20 through 150 tons — up to 300 tons for installations re-



PROCESS COOLING INSTALLATION — This 100-ton Flow-Therm Packaged Chiller and a Dry-Ex fluid-to-fluid Heat Exchanger is cooling Zinc Cyanide Plating solution at Ford Motor Company's Sandusky, Ohio plant. Installation was handled by Udylite Corporation under the supervision of J. K. Rawsthorne, Sales Engineer for J. Geo. Fischer & Sons, Detroit, Mich.



DRY-EX LIQUID CHILLERS LIQUID

HEAT EXCHANGERS



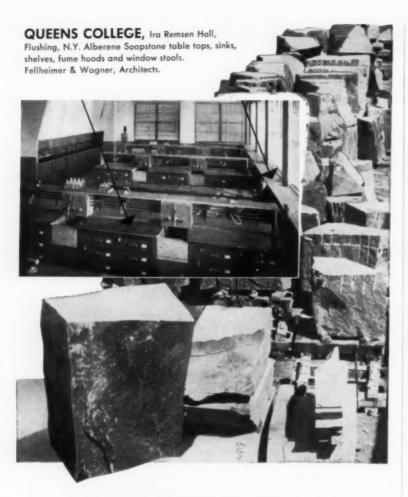
CONDENSERS



**EXCLUSIVE FEATURE**—Key component of the Acme Flaw-Therm—the Dry-Ex chiller—contains STAR-INSERT TUBING, an exclusive design that more than doubles the heat transfer surfaces... gives more chilling capacity.

Clip this coupon and attach to your letterhead, to receive your new Acme Flow-Therm Catalog.





## **Immediate Deliveries!**

Alberene Stone can be shipped normally in 60 days—or even sooner to meet very special circumstances. We can schedule our deliveries to meet all reasonable requirements of contractors and laboratory equipment manufacturers.

Further, the supply of Alberene Stone is inexhaustible. New veins are constantly being located in company owned quarries in Albernarle and Nelson Counties, Va.

Alberene Stone is the only natural silicate stone with the surface that goes all the way thru. It can be cut, drilled, tongue-and-grooved, refinished and reused almost indefinitely — while providing the best obtainable chemical resistance!

For information and technical assistance, address: Alberene Stone Corporation, 419 Fourth Avenue, New York 16, N. Y.

# ALBERENE STONE

provides LOW ABSORBENCY protection

#### THE RECORD REPORTS

(Continued from page 312)

in First National Bank Building, Iron Mountain, Mich. Bruce H. Smith, A.I.A., is partner in charge.

Adrian Wilson & Associates, Architects & Engineers, have announced the opening of new permanent offices at 320 Carson Ave., Las Vegas, Nev. Richard Drayton is project manager.

#### Firm Changes-

- The Office of Crow, Lewis & Wick announce that Daniel C. Jensen, A.I.A., formerly hospital architect with the U. S. Public Health Service, is now associated with the office, 200 Fifth Avenue, New York 10, N. Y.
- Albert Frey, F.A.I.A., & Robson Chambers, A.I.A., associates of Clark, Frey & Chambers, Architects, 879 North Palm Canyon Drive, Palm Springs, Cal., announce the continuation of their partnership for the general practice of architecture under the name of Frey & Chambers, Architects A.I.A., at the same address.
- Kelly & Gruzen, Architects and Engineers, of New York, Boston and Newark, have named S. Robert Greenstein, A.I.A., an associate in the firm, on whose staff he has been since 1951.
- Peter A. Strobel, who has continued to operate the firm of Strobel and Salzman since the death of Joseph Salzman, and Dr. Paul I. Rongved, Consulting Engineer, formerly at 299 Madison Ave., New York City, announce the formation of a new partnership, Strobel and Rongved, Consulting Engineers, 70 W. 40th St., New York 18, N. Y.
- The partnership of Thomas and Sweet, Architects, has been dissolved following the death of Charles E. Thomas. Gordon Sweet, A.I.A., will continue the practice of architecture under his own name at the same address, 222 E. Bijou St., Colorado Springs, Colo.

#### New Addresses

Manson Carver Associates, Registered Architects, A.I.A., 520 Cherry St., Lansing, Mich.

Anton J. Eichmuller, P.E., Consulting Electrical Engineer, 408 The Arcade, Cleveland 14, Ohio

Johnson & Whitcomb, Architects, A.I.A., 22 Palmer St., Cambridge, Mass.

# Why Don't You Let V-LOK Sell YOUR Next School Job?



# Acres Of Steel Framing Up and Being Roofed In And Not a Brick Has Been Laid



INTERLOCKING STRUCTURAL MEMBERS SPEED ERECTION

That's why V-LOK Steel Framing cuts construction time in half  $\dots$  7 or 8 months instead of 12 or 14 months.

V-LOK reverses the old procedure of waiting months to lay up masonry walls and partitions so that a school can be roofed in and interior work started.

V-LOK with curtain walls designs into every need of the modern school and the Architect's structural requirements at a cost per square foot that warrants first consideration in every school district.

It only takes one V-LOK job and the savings in erection time to make a School Board and the tax payers in that district your friends for life. The V-LOK Design Manual will be a welcome addition to your files. Send for it.



The
Bank Building
and
Equipment Corp.
selects
BIGELOW
carpet again



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A recent project involved the design of the Fidelity Federal Savings & Loan Association in Glendale, Calif. In selecting the right carpet three issues had to be considered . . . the carpet had to be visually appealing; had to be able to withstand heavy wear and most important, it had to be flexible enough in texture and design so that it could be easily utilized to fit the intricate architecture of the floating stairway.

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The final selection for the Fidelity Building was Bigelow Gropoint,<sup>®</sup> a durable as well as luxuriously attractive carpet.

Gropoint suited the Bank Building Corporation's every need. They were able to explore new areas of interior design with Gropoint—gold Gropoint for the lobby and a complimentary burnt orange color for the imaginative floating stairway.

Gropoint also greatly enhanced the architectural beauty of the bank's interior. The columns shown were carpeted along their sides from the lobby floor to the ceiling in alternating gold and orange...creating a complete atmosphere of warm congeniality.

K. James Ferguson, Chief Interior Decorator for the Bank Building Corporation says, "We have used a good deal of Bigelow carpeting in the past. We have found it to be most usable, not only from the maintenance standpoint, but from an acoustical and aesthetic point of view to be excellent."

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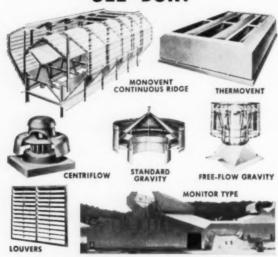
You may contact Bigelow through the nearest sales office or by writing to Bigelow Contract Department, 140 Madison Ave., New York 16, N. Y.

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#### PUBLIC ARCHITECTURE

(Continued from page 12)

The four buildings selected to represent the 1947–1956 decade are shown on page 326. A complete list of the buildings in the exhibit, with the advisory panel's commentary in italic, follows:

A LOOK TO THE PAST — Robert Mills (1781–1855), Federal Architect of the Treasury Department, 1836–1842

1836-1870 — Treasury Building, Washington

1837-1867 — Old Patent Office, Washington

1839–1855 — Old Land Office, Washington

1847 — Custom House, Boston

1857 . . . The classical tradition in architecture, as exemplified by the work of Mills, comes to an end in America at about the same time that Viollet-le-Duc, in France, is writing his "Discourses" on rational or functional architecture. For almost 50 years we shall see a restless search for change, a hodge-podge of individual selections from many architectural styles modified to suit some obscure creative urge — or perhaps merely the desire to be different.

DECADE: 1857-1866

1858 — Post Office and Court House, Windsor, Vt.; Ammi B. Young, Supervising architect

1859 — Old Custom House, Norfolk, Va.; Ammi B. Young, Supervising Architect

DECADE: 1867-1876

1871 — Custom House, Portland, Me.;
A. B. Mullett, Supervising Architect

1874 — Branch Mint, San Francisco;
 A. B. Mullett, Supervising Architect
 1875 — Old State, War and Navy Build-

1875 — Old State, War and Navy Building, Washington; A. B. Mullett, Supervising Architect

DECADE: 1877-1886

1878 — Old Court House, Parkersburg, W. Va.; A. B. Mullett, Supervising Architect

1882 — Old Post Office and Court House, Nashville, Tenn.; James G. Hill, Supervising Architect

1884 — Old Post Office and Custom House, Albany, N. Y.; James G. Hill, Supervising Architect

DECADE: 1887-1896

1888 — Post Office, Council Bluffs, Ia.;
M. E. Bell, Supervising Architect

1890 — Post Office and Court House, San Antonio; W. A. Fieberet, Supervising Architect

1891 — Old Post Office, Houston; W. A. Fieberet, Supervising Architect

1897 . . . The riot of unrestrained, undirected — and seemingly uninspired — (Continued on page 324)







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REINFORCED
CONCRETE job!

John Hans Graham, A.I.A. and Associates Palm Beach, Florida Oboler & Clarke Miami Beach, Florida Taylor Construction Co. Miami, Florida

architects

structural

engineers

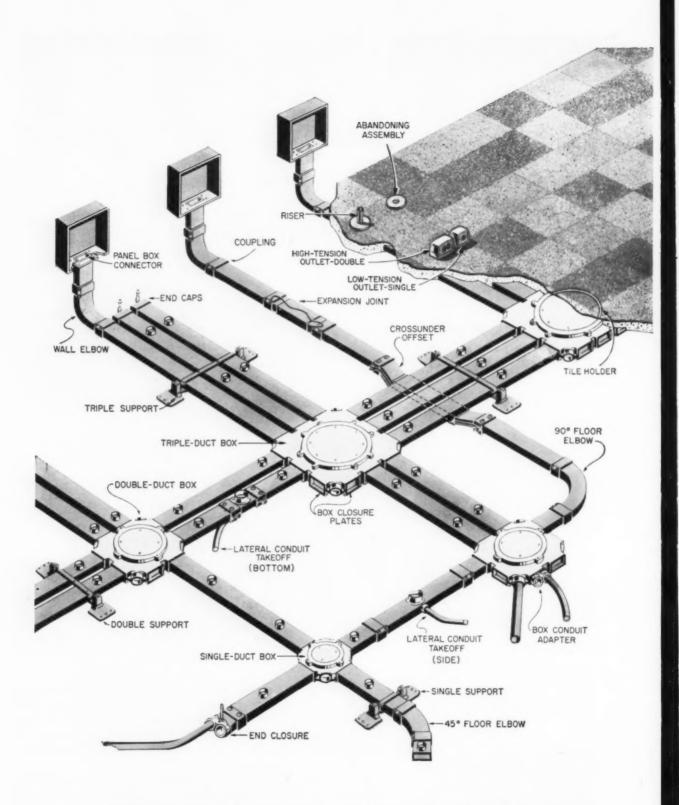
general contractor



CONCRETE REINFORCING STEEL INSTITUTE 38 S. Dearborn Street Chicago 3, Illinois Time and again, reinforced concrete is the choice of leading architects for America's finest hotels and resort apartments. John Hans Graham, A.I.A., architect for the luxurious Palm Beach Towers, states, "The speed of construction, the resultant economy, and the ease of cantilevering were invaluable assets that more than justified the choice of reinforced concrete."

The Fountainbleau, Eden Roc, Americana, and the magnificent, new Palm Beach Towers were all completed on schedule. With reinforced concrete construction, costly delays and lost hotel revenue were thus avoided.

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General Electric's new single-level steel underfloor wiring system provides a low-cost but efficient means of handling both feeder and branch circuits. The simple, flexible design permits installation under any conventional floor layout without special adaptations.



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This addition to the G-E line of steel underfloor systems is designed for standard floor layouts where the greater flexibility of the two-level system is not required, or where fills are too shallow to accommodate other systems.

General Electric engineers have designed this system for easy installation—box and duct leveling is done quickly with a screw driver . . . slip couplings simplify duct connections . . . and wire pulling is a fast job because the galvanized ducts have smooth, organic-coated interior surfaces.

The standard-size steel ducts (3.357 sq inches) provide adequate feeding and distribution capacity. Single, double, or triple runs of duct can be used

according to the number of services needed.

All three General Electric steel underfloor wiring systems are listed by Underwriters' Laboratories, Inc.

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Consider these factors before choosing an underfloor wiring system for your next project: a. Can a standard floor layout handle feeding and distribution? b. Is the floor fill less than  $3\frac{1}{2}$  inches? c. Can a single-level system fulfill future wiring requirements?

If so, you should consider this new General Electric single-level steel system. However, for other applications investigate G-E cellular-steel floor and two-level systems. Whatever your needs, General Electric's experience and complete product line can provide your best answer. Call your nearest General Electric Construction Materials district office or write Section C77-115, Construction Materials Division, General Electric Co., Bridgeport 2, Conn.

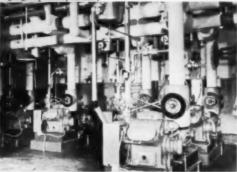
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Shown are the five Vilter sixcylinder ammonia compressors which provide most of the refrigeration. Other Vilter equipment includes: evaporative condensers, Pakicer, for their ice requirements in kitchen and bottle beverage room service, shell and tube brine coolers to supply cold brine for the kitchen refrigerators and cold storage rooms, and air conditioning units. Complete automatic control is provided.



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Prominent among Vilter equipment are the feature-packed VMC ammonia compressors which are installed in the power plant across the street—their compact design insures more capacity in less space... assure lower maintenance cost because of interchangeability of components... provide efficient, economical performance, guaranteed for a long life. Your refrigeration dollar buys more in a Vilter VMC.

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#### PUBLIC ARCHITECTURE

(Continued from page 320)

individualism in architecture is nearly over. Louis Sullivan and Frank Lloyd Wright, not represented in this exhibit, are almost alone in resisting the classic revival ushered in by the Chicago World's Fair in 1892.

DECADE: 1897-1906

1899 — Post Office, Paterson, N. J.; William Martin Aiken, Supervising Architect

1900 — Post Office and Court House, St. Paul; W. J. Edbrooks, Supervising Architect

1902 — Post Office, Annapolis, Md.; James Knox Taylor, Supervising Architect

1907 . . . The new century opens with optimism and confidence in architectural design — as in everything else. The Fine Arts Commission is created in 1910 and, with practically unanimous support on the part of the architectural profession, it will decree that public buildings in Washington be designed in the classic tradition.

DECADE: 1907-1916

1909 — Post Office, Denver; Tracy,
 Swartwout and Litchfield, Architects
 1910 — Post Office, Gulfport, Miss.;
 James Knox Taylor, Supervising Architect

1915 — Post Office, Dayton; Oscar Wenderoth, Supervising Architect

DECADE: 1917-1926

1919 — Customs House and Appraisers Stores, Wilmington, N. C.; L. A. Simon, Supervising Architect

1919 — Post Office, New Haven, Conn.; James Gamble Rogers, Architect

1922 — Post Office, Santa Fe; L. A. Simon, Supervising Architect

1927 . . . The new expression, called modern architecture, gains ground. This is a period of doubt and debate: "Modern" vs. "Traditional." A good deal of experimentation will take place in the design of some private and institutional buildings but the design of Federal public buildings will follow a more cautious path for the next two decades.

DECADE: 1927-1936

1930 — Internal Revenue Building, Washington; J. A. Wetmore, Supervising Architect

1932 — Central Heating Plant, Washington; Paul Cret, Architect

1935 — New Mint, San Francisco; Gilbert S. Underwood, William Dewey Foster, Architects

1936 — National Archives, Washington; John Russell Pope, Architect

(Continued on page 326)



#### A dramatic "change of pace". Waylite walls

need never be monotonous or dull...there is always
an architectural treatment or form that harmonizes with the
function of the structure. In addition Waylite provides an
insulative structural wall that needs no acoustical treatment—
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### HOW ACCOMPLISHED:

Textured 8 x 8 x 8 inch Waylite Units stacked diagonally. Some units set in wall at different level for shadow effect.

#### CREDITS:

Pub Bar and Restaurant, Philadelphia. Architects: Armand Carroll and Wm. J. Stephenson. Mason contractors: Casper Bros.

#### PUBLIC ARCHITECTURE

(Continued from page 324)

DECADE: 1937-1946

1938 - Department of State, Washington: Gilbert S. Underwood, William Dewey Foster, Architects

1940 - Post Office, Santa Barbara, Cal.; Reginald D. Johnson, Architect 1940 - Post Office, Great Neck, N. Y.; William Dewey Foster, Architect 1941 - National Airport, Gravelly Point,

Va.; Howard L. Cheney, Architect





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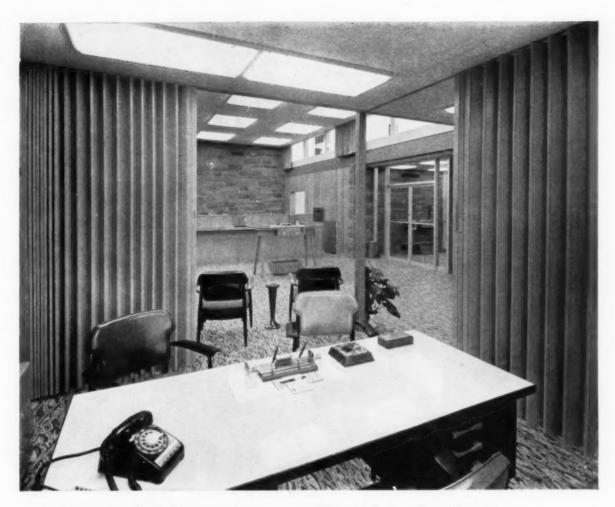
DECADE: 1947-1956

1. United States District Court House for District of Columbia, Washington. D. C. (1950); Louis Justement, Architect. 2. Architecture-Engineering Building, Howard University (1952); H. B. Robinson and P. R. Williams, Architects. 3. National Institutes of Health, Bethesda. Md. (1953); Allan Stewart Thorn, Supervising Architect. 4. Radio Propagation Laboratory, Bureau of Standards, Boulder, Colo. (1954); Pereira & Luckman, J. E. Stanton, Architects









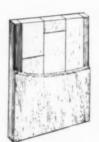
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#### THE RECORD REPORTS

(Continued from page 18)

field — economics, industry, research, and design (mechanical, structural and architectural) — and the topics discussed ranged over as many aspects of these specific areas as time permitted.

Dr. Hayden Gordon, the mechanical engineer who designed the Radiation Laboratory's new heavy ion accelerator (which is housed in a building designed by San Francisco architects Corlett and Spackman), its Cockcroft-Walton voltage multipliers, and ion sources, and is now chief engineer for the entire laboratory, supplied basic information on the two kinds of phenomena with which the nuclear field works. These are the radioactivity produced by natural fission processes (as in a reactor, for instance) and that which is produced in electrostatic machines (as in such large research accelerators as the University of California's Bevatron, Cyclotron and Heavy Ion machines, the Cosmotron and soonto-be completed alternating gradient synchrotron at Brookhaven National

Laboratory, and in Van de Graaff machines such as those now in use in the Bay Area by Standard Oil and Shell Oil Companies). Accelerators, he explained, are used in research and industry, and vary in size, shape, and method of producing the basic requirement of highly energized particles as well as in the purpose for which they are used.

Reactors are not machines in the usual sense, since what takes place in them is not dependent on moving parts in the same way that machine processes ordinarily are employed. The reactor provides the proper conditions for sustaining the fission processes which are natural in certain elements such as uranium.

"For its size," said General Electric's Dr. Bennett, "the nucleus — from whose fission vast amounts of energy emerge — has generated more interest than anything else this side of the horizon. At Vallecitos our work is directed at finding out more about this invisible amount of matter and at putting to work the energy released when it is 'split.'

"The heart of our operation is the boiling water power reactor, which 'went critical' late this summer, and the turbo-electric plant located immediately adjacent to it. The heat obtained in the release of energy from the fission process is converted into steam which is then handled in the conventional way by the turbines and generators to produce electricity for consumers in the surrounding area. When we begin to do this — very shortly, we expect — this will be the first electricity for civilian consumption produced entirely by private industry.

"Our laboratories, our reactors — we will have three, eventually — our turbo-electric plant, must all be housed in structures which involve not only planning and structural considerations, but provision of shielding — by materials and by distance — from radiation.

"Although I believe that the containment vessel—the outer shell which houses the reactor and is designed to take the pressure should an accident occur in the operation of the reactor—will eventually disappear because we will have learned how to control the whole process just as the steamboat's engines are controlled, the design of this shell is a problem to which architects might well contribute some thought.

"Science goes on in the most unattractive surroundings, and if the buildings of the nuclear field are to be any better looking than they generally are today, we will have to depend on architects to make them so."

One of the biggest problems in obtain-(Continued on page 334)



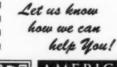
e realize that Technical Departments are only one segment of the vast complex which an Architect must integrate into the functional unit required for today's hospital • Yet they are a vital segment ... and changing. Standards, techniques and equipment are advancing almost from day to day.

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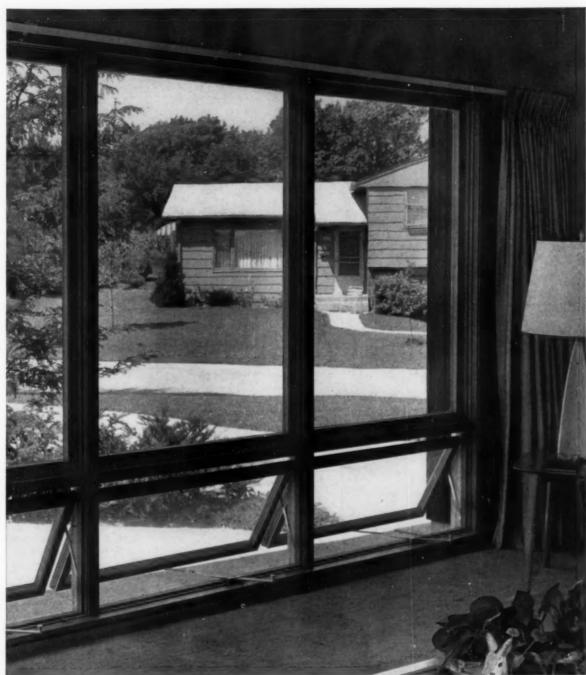
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#### THE RECORD REPORTS

(Continued from page 328)

ing creative structural design today, according to Professor Lin, is that "for so long we mass-produced engineers to meet the need of a rapidly expanding society, and we are now paying for it; we now have a generation of engineers great numbers of whom are no longer capable of independent and initiative thinking. We did this by failing to teach our students the basic principles of science and engineering and by training

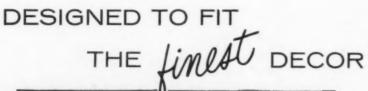
them only in the application of rules of thumb.

"As a result, there are nuclear physicists—I have talked with many of them—who prefer to solve their own building problems without seeking the advice of architects and engineers because they were discouraged by the design professionals' lack of preparation to cope with new problems. In the nuclear field even more than elsewhere, it is no longer possible to copy one design from another as we do in our ordinary buildings. . . .

"On the other hand, I have also met architects and engineers who have been inspired by the new discoveries and new horizons opened up in the field of nuclear physics to work toward new developments in architecture and engineering not only to answer the needs of atomic energy but to serve other purposes as well. This to me is perhaps the most significant impact that atomic energy can make on our design professions. It proves to me that there is practically nothing impossible if we make up our minds to achieve it."

Although the design professions have not as yet begun to feel the widespread impact of nuclear energy in the everyday pursuit of their practices, in the sense that miracles of nuclear science will alter our buildings as the "push button era" was supposed to alter the post-war house, or that new materials are in ready form for new and undreamed of uses, the advent of the small accelerator and the low-priced (from \$55,000 to \$95,000 apiece) reactor indicates the proximity of the period in which college science buildings will be incomplete without these nuclear tools, hospitals will demand that a reactor for on-the-place production of short-lived isotopes be incorporated in their new facilities, industrial accelerator and reactor installations will improve products, lessen the costs, and produce new materials.

To the average practitioner who thinks of the nuclear field in terms of great research laboratories housing huge machines and involving massive walls of concrete for shielding, intricate methods of radioactive waste disposal and structures which provide for wide extremes of very high and very low temperatures. the possibility of doing a building in this field may seem remote. But the fact is that some parts of industry have already found how to utilize nuclear processes in their established routines, and other industries are being formed to deal with problems directly connected with the nuclear field - such as fabrication of fuel elements, manufacture of controls, handling of radioactive materials, etc. New buildings for these industries can make use of the architects' services in obtaining buildings which are not only "better looking buildings," as Dr. Bennett pointed out, but buildings planned to provide a more suitable environment for those who work in them, greater convenience, a more comprehensive relation between departments, and particularly, space planned for the ultimate in flexibility - the heart's desire of the nuclear scientist.

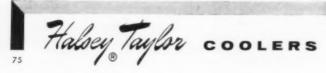


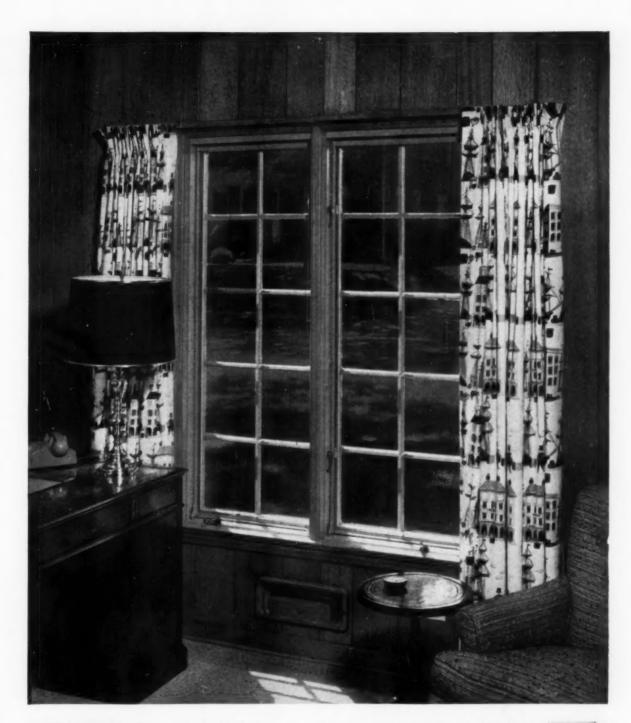


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#### THE RECORD REPORTS

#### WASHINGTON REPORT

The cost compilations contain only those projects on which cost estimates were made by the higher institutions themselves.

A total of 4058 of the instructional buildings being planned would cost an aggregate of \$2,192,480,000, the replies to the questionnaires show. This em(Continued from page 32)

braces both public and private construction.

A further breakdown indicates that the 177 research projects contemplated for the period, and reported as to estimated cost, would involve a total outlay of \$191,338,000 and an anticipated cost of \$26 per sq ft on the average. The cost for general units including every type from administration buildings to warehouses—and there were 511 of these where cost estimates were given—totaled \$351,550,000, or an average of \$19.60 per sq ft.

Still including both private and public higher education construction, the totals for anticipated auxiliary buildings were 457 units costing \$297,693,000, or \$20.80 per sq ft, and for residential types, 1713 units costing \$1,495,979,000, or \$17.20 per sq ft.

The facilities survey also contains detailed analyses of expected cost for these regions — Northeast, North Central, South and West — with a separate listing for each state by region. In addition, there are separate breakouts for the U. S. service academies and for "outlying parts of the United States."

It is interesting to note that three auxiliary buildings and three residential units are indicated for the academies. This would include the vast program of the Air Force Academy at Colorado Springs. A per-sq-ft cost of \$36.30 is indicated for the auxiliary types, and a cost of \$11.90 for the Service residences. In addition, 11 instructional units are on the tables for the academies at a per-sq-ft cost of \$27.40 (compared with the \$20 estimate for public and private), and eight "general" buildings show up at a cost average of \$8.80 (compared with the aggregate U. S. figure of \$19.60).

Taking the public and private work as a whole, there is of course a wide variance in anticipated cost as to different types of buildings and areas of the country. In the instructional group, for example, where \$20 was the overall sq ft cost average, the high was shown to be \$35.40 for Delaware, the low \$8.20 for Nevada.

For other types: Research, \$26 per sq ft average: high, Indiana at \$36.30; low, New Hampshire at \$6.00.

General, \$19.60 average; high, \$47.30 in New Hampshire; low, \$9.50 in Georgia. (The latter figure excludes South Dakota, where it was reported one institution would construct a \$5000 general (Continued on page 334)

Residential Buildings	Number of Buildings	Sq Ft per Student	Cost per Student
Aggregate U.S.	1588	241.1	\$4150.90
Northeast	349	256.2	4954.90
North Central	488	251.3	4319,80
South	503	221.6	3281.30
West	232	231.8	4191.40

PRELIMINARY FIGURES on perstudent space and cost estimates for residential buildings planned 1956–1970 by respondents, public and private, to U. S. Office of Education Survey



Badger, Iawa elementary school. Architects: Thorson, Thorson and Madson, Waterloo, Iawa. Contractor: Sande Construction Company, Hum-

As important as economy is, price alone doesn't sell the building committee. The wide acceptance of Rilco laminated-wood members in church and other construction is due to the warmth, beauty and decorative values offered as well as the savings.

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#### THE RECORD REPORTS

#### WASHINGTON REPORT

(Continued from page 332)

purpose unit at an estimated cost of 20 cents per sq ft.

Auxiliary, \$20.80 average; high, \$28.50 in Delaware; low, \$7.90 in Tennessee.

Residential, \$17.20 average; high, \$24.90 in Delaware; low, \$11.10 in Missouri.

Another series of tables prepared by

the facility survey specialists detailed the size and cost of instructional space showing private and public separately, again breaking each category into region and state as well as subdividing instructional into its own components such as university, theological school, liberal arts college, etc.

Here there appeared an interesting comparison between public and private both as to size and cost. All figures are for construction planned from 1956 to 1970. Where in the aggregate instructional space at the private higher educational institutions will cost \$19.50 per sq ft and provide 68.9 sq ft per student, the public institutions reported that their instructional space would cost \$19.70 per sq ft and that plans called for providing 62.2 sq ft per student in the new buildings. And here the service academies were way out ahead with their cost per sq ft given as \$28.10 and their space to be provided, 163.6 sq ft per student.

In passing it can be noted that the higher institutions in the public classification will accommodate 886,195 students in their new space built through 1970 while the private higher education institutions expect to accommodate 357,298 students.

A separate table on air conditioning projected is definitive only insofar as percentages of space in different types of structures is to be treated. The important indication here is that one out of every seven structures planned in the period will be 75 to 100 per cent air conditioned. (This table lumps public and private together.)

If it can be assumed that the large number of structures on which no report was received concerning air conditioning treatment will be air conditioned, it becomes obvious that a large percentage of all buildings in the projection will not benefit in this respect. Take residential, for example. Here the records show 1843 buildings to be built at a cost of \$1,588,-476,000. The owners, public and private, have stated that 1080 of these will have no air conditioning whatsoever. Another 504 had no report to indicate whether or not they would. This left but 259 residential buildings reported as definitely planned for some air conditioning; 131 of them will be 75 to 100 per cent air conditioned as to total interior space.

The table on air conditioning includes that type of work being planned for existing as well as new structures.

Other tables compiled by the agency give detailed data on estimated cost of additions, again by type of school and area. Other tables, one on private and one on public, delineate cost and number of buildings and campus improvements planned from 1956 through 1970, analyzing as well the facilities that will be additions and rehabilitations, grouping them by geographic regions and by type of institution.



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Presents 35 new religious buildings, each of which is the work of a gifted architect collaborating with a clergyman and building committee who were not afraid to break with the architectural past. Protestant, Catholic, and Jewish buildings are shown, from all parts of the United States as well as Europe and Asia. Each building is shown in brilliant photographs, and plans and draw-

There are several other sections. One is called "Worship and the Arts". It explores the relationship between eternity and the present, as it pertains to the design of churches. There follow six articles on worship and the arts in different traditions—Jewish, Catholic, Orthodox, Episcopal, Reformed, and Lutheran. Also contains cogen studies by leading architects, clergymen, and secular authorities. Over 300 excellent illustrations.

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sumer Goods, Manufacturing Laboratories, Utilities and Service Industries, and Heavy Industry.

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by Thomas H. McKaig, Consulting Engineer

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Blaser, a Swiss designer who has studied under Alvar Aalto in Finland and Mies van der Rohe in America, visited Japan in 1953, at which time the photographs, line drawings, and plans in this book were executed. Although the text is lucid and analytical, it is the author's intention to let the photographs speak for themselves; in Blaser's own words, "... to suggest how these structures might shadow forth a new spiritual style for the West."

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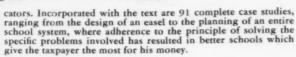
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#### PERSPECTIVES

(Continued from page 9)

no longer a valid solution to the problem. The location of a private corridor west of the Rotunda, which the public will not be required to cross to reach the historic features commonly visited by them, is a necessity.

#### DINING FACILITIES

Your Consultants approve the proposed new and efficiently designed spaces designated for use for Senate Dining Rooms, House of Representatives Dining Rooms, and service rooms for Capitol employes; we concur that these rooms should be located in the terrace on the west side of the Capitol where views may be had along the Mall toward the Washington Monument (Scheme C). When the central portion of the terrace is rebuilt to accommodate these facilities, the space underneath them should, we believe, be arranged at the same time so that it can be developed as prime space in the future. In this connection we believe that the rebuilding of the west terrace in its entirety would be a most productive source of interior space in the Capitol at a relatively low cost; about 75,000 square feet per floor could be provided. Either one or two floors could be added below the present levels. The lowest would be without windows but could, of course, be air conditioned and could accommodate, with room to spare, all of the mechanical services and air conditioning equipment now on the upper terrace level. The terrace could be rebuilt one section at a time with little interference with the functioning of the Capitol itself.

Your Consultants believe that the scheme of obtaining added space in the Capitol by rebuilding the terrace might be considered as the next step to be taken in the improvement program. The windows in the terrace walls may be designed to be thoroughly appropriate in appearance; the rooms without windows could be artificially lighted to provide eminently suitable offices.

#### STONE WORK — CENTRAL BUILDING

Your Consultants have given much thought to the rebuilding or refacing of the central portion of the Capitol with marble. The sandstone, of which the east front was constructed, has been disintegrating for many years. Such disintegration is common in buildings made of soft stone. At no time during the last forty years have the Houses of Parliament, London, been without a scaffold on some part of the perimeter of that structure, where disintegrated stone was removed and replaced with new stone of the same size and shape. This is true of almost all old world buildings made of soft stone.

If the Capitol had not been painted, such a normal restoration would, without doubt, have been a standard procedure. Instead, because of the custom of painting periodically, cavities in plain surfaces (cavities in the faces of columns, for instance) have been filled with cement mixtures before repainting, while edges of dentils, coronas, etc., have been repainted in the condition to which disintegration has progressed.

Your Consultants believe that it would be undesirable to have the Central part match the wings inasmuch as the original central element was designed as an architectural entity to stand by itself. The esthetic function of the wings is to serve in a rather subordinate manner as a setting for the central element. The marble of the wings is not of a good color nor has it weathered attractively. The mortar joints are too wide and conspicuous and the effect is somewhat

(Continued on page 342)

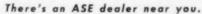




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#### PERSPECTIVES

(Continued from page 340)

harsh and drab. If the central element is to be refaced it should be of marble as beautiful and as warm as that of the Lincoln Memorial: and the workmanship should be as exquisite as that of the Lincoln Memorial or of the Mellon Gallery with the narrowest possible stone jointing, requiring that the stones be expertly fitted.

#### THE EAST FRONT

It was agreed between your Consultants and the Architect of the Capitol that the question whether or not to move out the East Front would not be a matter for discussion as this had been decided already by an Act of the Congress. Your Consultants are therefore concentrating on the problem of how best to accomplish the will of the Congress within the limitations imposed by the Act in ways that will be least detrimental to the beauty and majesty of the East Front. They agree that these several requirements will be best fulfilled and very satisfactorily so by the design designated as Scheme C developed by your associate architects and based on a most carefully thought out study of the

needs of the Congress in the foreseeable

As to the matter of the extraordinary beauty of the East Front as it now stands, when Architect Walter added the Senate and House wings he brought. them forward to the east far enough so that they do not compete architecturally with the original central portion; the wings are thus disconnected from the original Capitol building by the considerable length of their inner sides and so act as an enframement for it.

In his 1903 report on how to enlarge and complete the Capitol, Mr. Thomas Hastings stated that if the original central part of the East Front were to be brought forward as much as 36 feet, it would be so nearly in line with the wings that it would be effectively dwarfed by them. He insisted that if it were to be so brought forward it should be redesigned. In this redesign, the portico was planned to have ten columns instead of eight, the pediment was to be flattened and the front central steps widened some 20

Your Consultants are unalterably opposed to any redesign of the central portico and steps of the East Front as proposed by Mr. Hastings; they believe that the great beauty of proportion and historic importance of this central element should be preserved without any modification in the façade other than to move it forward as proposed.

In his study of this problem Mr. Hastings apparently did not realize that there is a way of retaining the magnificence of the central element of the East Front and keeping it from being dwarfed by the wings without redesigning it; and this is to move out the wings an equal distance with the central element.

It may be considered beyond the scope of this report to deal with the wings designed by Mr. Walter but we do not want to leave the Commission in ignorance of our considered belief that the present beauty of the Capitol can be kept only by moving out the whole East Front, wings and all, and not the central part alone. Accordingly we recommend that the moving out of the wings be considered part of the ultimate development of the Capitol in order that the present majesty and court-like effect of the Capitol may then be retained.

Lengthening the wings would require on the North and South sides the addition of three columns, but these could be taken from the inner row of the East portico and not be missed. Although the lengthening of the wings would be a relatively costly operation it would be less so proportionally than moving out

(Continued on page 344)

### with emphasis on the



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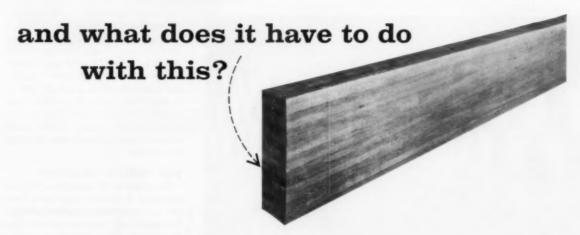


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tions . . . glue application . . . clamping pressures . . . surfacing of laminated timbers . . . fabricating to full size pattern . . . protection during transit and erection.

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#### PERSPECTIVES

(Continued from page 342)

the central portion and it would materially increase the usable space within the Senate and House wings in the very places where space is most needed. It would, besides, provide space and desirable locations for the increased elevator installations and simplify access to the wings from the office building tunnels.

#### THE WEST FRONT

In the opinion of your Consultants the West Front of the Capitol is less success-

ful as an architectural composition than the East Front. Although adequate for the original building, it is not suited to the enlarged composition resulting from the addition of the wings and of the present dome. We recommend that the Bulfinch colonnade be extended across the entire central element to form a loggia, of noble proportions overlooking the Mall, as shown on the drawings. We believe that this conception of a broad loggia, together with the terraces that house the restaurants and other added facilities, would be the finest visual contribution that could be made to the Capitol by our generation.

The proposed façade would be related to the Mall stretching down to the eminence on which the Washington Monument stands. It has the qualities of Roman architecture of the Republican period that Thomas Jefferson felt "best fitted for adaption to the buildings of the new Republic of the West."

#### DOME

It is the unanimous judgment of your Consultants that the cast iron dome of the Capitol is a distinguished and ingenious solution to a difficult problem by the bold use of cast iron, a material quite new at the time of building, in a way and at a scale never before attempted; they are of the opinion that it is a notable example of architectural and engineering pioneering.

Should the dome ever require reconstruction, your Consultants recommend that it be rebuilt in metal and painted, as it is now. For historical reasons, it is our judgment that it should not be changed from metal to masonry construction. A recent survey proves it to be in excellent condition structurally except for minor details that can easily be corrected.

#### THE "SHRINE" FEATURES

We concur in the suggestion that certain parts of the building of great interest to thousands of visitors daily, because of their historical connotations, be restored and maintained substantially in their original condition, for example, the Rotunda, the old Supreme Court Room, Statuary Hall and the central circulation of the basement and first floors.

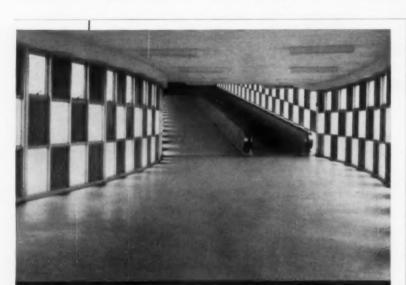
#### THE EAST PLAZA

At present the East Plaza is given over, almost exclusively, to automobile traffic and to parking. Much of this automobile parking space is reserved by those who work in the Capitol, by visitors to the Capitol and by those who transact business in the Capitol.

This moving traffic and parked automobiles detract from the dignity, in fact it may be said to destroy its dignity completely. We concur in the recommendation that the Plaza should be redesigned so that no automotive traffic whatsoever can proceed through it nor park on it for any reason except as may be necessary when the President visits Capitol Hill to address a joint session of the Congress or when the head of another sovereign nation visits the Capitol on a ceremonial occasion.

#### THE CAPITOL GROUNDS

The Capitol of the United States has a distinguished site on a natural emi-(Continued on page 346)



Bridge from parking lot to Houston Coliseum.

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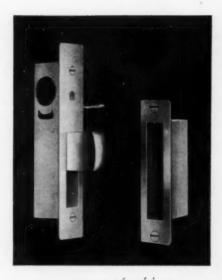
Whether ramp, level surface or stairways, places of public travel should be free from slipping hazards, as was wisely done by the authorities who specified ALUNDUM Aggregate for the great new Houston Coliseum.

Architect: Golemon & Rolfe, Houston, Texas General Contractor: Fisher Construction Company, Houston, Texas



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(Continued from page 344)

nence; it demands a setting worthy of the building. It is your Consultants' considered opinion that the general character of the Olmsted 1874 Plan for the grounds of the Capitol should be retained insofar as possible. Frederick Law Olmsted was appointed landscape architect for the Capitol by Act of Congress on June 23, 1874. His first recommendation was for a "broad plaza east of the Capitol," which is shown on the plan that he submitted for the development of the grounds reproduced in Glenn Brown's "History of the United States Capitol." Olmsted conceived the area around the Capitol as a single unified design in a spirit of balanced informality. The roads and paths sweep gracefully around the central architectural element in curved flowing lines that aid in giving great nobility to the rectangular plot, bordered by Constitution Avenue, 1st Street East, Independence Avenue and 1st Street West, in which the Capitol stands. We believe that the modified design should retain

all of the breadth and dignity of the old and continue to express the distinctive character that has marked the Capitol grounds for more than three quarters of a century.

We firmly believe that the same spirit should be retained in the design of the grounds at the East Front of the Capitol as obtained in the original plan, substituting for the carriage drives a distinguished plaza for pedestrian use only. The Capitol stands on a paved plinth; on the East Front, before the fine Bulfinch portico and its monumental steps and stretching across the Senate and House porticoes, there should be a broad open plaza of noble proportions: this should count as a single unbroken area rather than as an area made up of a series of smaller parts. It should be enclosed on its periphery, other than where the building itself stands, by a balustrade of sturdy proportions and simple lines framed by trees. The line of this balustrade on the east side should be a broad sweeping reverse curve, rather than made up of broken angles that destroy the more desirable flowing continuity of outline, particularly when seen in perspective from the Capitol steps or from 1st Street East. The present plan relationship of the East portico to the projection of the Senate and House wings is one of the Capitol's greatest charms. Your Consultants urge that the plan of the plaza provide appropriately for the restoration of that relationship by extending the Senate and House wings eastward approximately the same distance as the proposed extension of the central element. The concave composition of the East Front of the Capitol seems to us to call for the type of curved outline of the east side of the plaza hereinbefore described.

This report was written after the death, on July 7, 1957, of one of your consulting architects, Arthur Brown, Jr., of Burlingame, California, consequently Mr. Brown's name does not appear in connection with this edited copy of the Report. Mr. Brown, however, subscribed to the statements, contained in a preliminary draft, dated June 3, 1957, and we are of the opinion, that, inasmuch as the nature of the recommendations is substantially the same, he would have been willing to sign this latest copy.

We take this opportunity to express our appreciation to you, to the members of your staff and to your associate architects and engineers for their cooperation in assisting us to reach the conclusions herein recorded.

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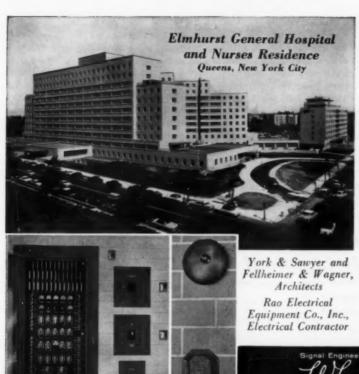
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#### - CONTENTS -

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#### COMPLETE INDEX

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#### THE RECORD REPORTS WASHINGTON TOPICS

(Continued from page 48)

The typical property value increased by 12 per cent in the FHA operations and the typical land price by 16 per cent. This is reflected in a seven tenths percentage point increase over 1955 in relationship of land price to total value. Section 203 structures increased by approximately four per cent in calculated

area and two per cent in room count. There was no change recorded in number of bedrooms for this type, but an additional three per cent had some form of garage facilities.

The report listed these major factors in the uptrend of land prices, property values, and home buyers' income: scarcity of suitable building sites and resultant high development costs, the demand for larger and better equipped homes, the availability of mortgage funds, and the general inflation of prices and concurrent increases in personal

income that have characterized the postwar period.

The median dwelling unit contained in rental projects approved for mortgage insurance in 1956 increased in size to 5.2 rooms compared to 4.7 rooms for 1955, FHA reported. The proportion of rental units containing five rooms or more increased to 62 per cent from 38 per cent in 1955.

The Section 803 program - mainly one-family structures - reported nine out of every 10 units approved contained five or more rooms. This trend toward larger units probably stems, it was said, from enabling legislation providing increases in the maximum per-room and per-unit mortgage limitations. This recognized higher costs.

Construction of larger units also was encouraged by the application of a maximum mortgage limitation on a per room basis to those projects with an average of four rooms or more per unit. For the smaller projects maximum mortgage allowance was calculated on a per unit basis. In 1956 the proportion of rental units having less than four rooms was 15 per cent as compared to 18 per cent in 1955, 25 per cent in 1954, and 23 per cent in 1953.

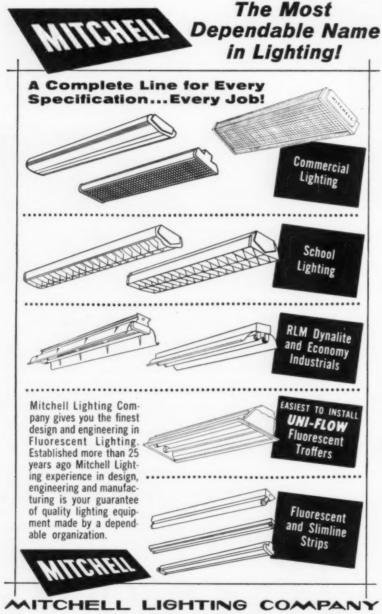
#### BRAB ANNOUNCES PROGRAM OF NEW STUDIES FOR FHA

An array of six new projects to undergo close scrutiny by the Building Research Advisory Board under the new contract with Federal Housing Administration contains a notable emphasis on slab-on-ground construction. Three of the six subjects deal with this in various aspects of vapor penetration and structural soundness.

The contract between FHA and the National Academy of Sciences, acting for BRAB, was signed October 1 and runs one full year. The studies to be made under it will lead to recommendations that will aid FHA in considering revision of its minimum property standards and materials requirements. BRAB Chairman Edward X. Tuttle, vice president of Giffels and Vallet, Inc. L. Rossetti, Detroit, will appoint special advisory committees for each study on the basis of individual qualifications. The committee will define the scope of each subject and study, evaluate information and data and prepare individual study reports.

BRAB outlined the areas of study as

1. A determination of whether or not concrete admixtures are effective as (Continued on page 350)



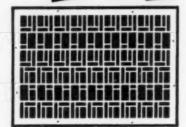
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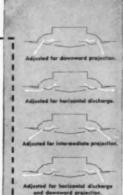
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#### THE RECORD REPORTS

#### WASHINGTON TOPICS

(Continued from page 348)

protection against ground moisture and vapor penetrating a slab-on-ground construction, and to develop test procedures needed for determining acceptability for any given admixture.

A determination of experience with various types of materials and methods of installation used for residential building sewers and modifications needed in the present requirements.

3. A determination of conditions under which a moisture barrier is needed for a slab-on-ground above grade level, and conditions under which the barrier may be located on top of the slab; and the moisture protection needed for both slab and walls of habitable spaces below grade.

 A determination of physical and thermal properties that should be required of products proposed for use as warm air heating and air conditioning ducts, for exposed locations in walls, attics, crawl spaces, to evaluate methods of installation, and to develop test procedures for acceptable use.

 A determination of criteria for proper design and construction of heated and unheated slabs-on-ground to insure structural soundness, including

(a) Maximum dimensions in which any unreinforced slab-on-ground may be constructed to avoid harmful cracking of the slab due to shrinkage and temperature changes, and amounts of reinforcement necessary for slabs of greater length, and

(b) Standards of construction for heated and unheated slabs-on-ground that will insure structural soundness in areas of expansive soils, and

(c) A definitive program of research or investigation that may be expected to produce remaining needed knowledge.

6. A determination of amounts of preservatively treated lumber necessary for effective termite control for various constructions, in various geographic locations, and whether a vapor barrier placed between masonry foundations and sill plates will be effective in preventing decay.

FHA said in connection with negotiation of the new contract that several problems affecting owners of new homes would be lessened as a result of the new studies.

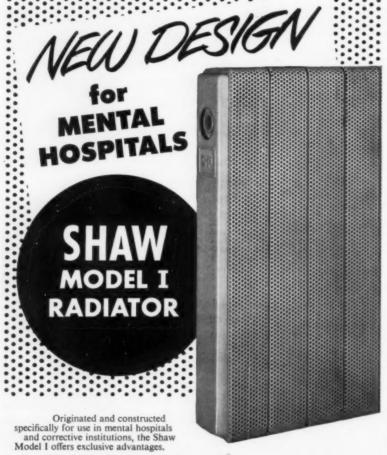
### PRODUCERS HEAR PLEAS FOR FOCUS ON MODULAR MEASURE

The nation's leading manufacturers of building products, meeting in Louisville late in September, were urged to a closer adherence to the modular principle in the design of their finished items. They also heard a strong plea for architects to join the modular measure movement themselves. It was the 36th convention of The Producers' Council, Inc.

From Cyrus E. Silling, F.A.I.A., Charleston, W. Va., Council delegates heard a brief explanation of the new Modular Building Standards Association, the recently incorporated non-profit organization devoted to promoting the acceptance and application of the modular coordination principle.

"In the past, architects and contractors have adapted to their uses the materials offered by the various producers in a confusion of sizes and joinery," Mr. Silling stated. "When the producer of building materials now seizes on the assembly line economies of standardization — easier scheduling of operations.

(Continued on page 352)



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## THE RECORD REPORTS WASHINGTON TOPICS

(Continued from page 350)

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ments. Architects would do well to consider their own position in this march of modular measure."

Thomas H. Creighton, editor of *Progressive Architecture*, held that working in the modular framework does not restrict architects; rather, he said, it opens up new opportunities for the architect to vary his drawing board operations. If there ever was a need for collaboration between the architect and the material producer, modular assembly brings that need to the fore, Mr. Creighton asserted.

The Producers' Council reelected all its officers for another year: Fred M. Hauserman, president of E. F. Hauserman Company of Cleveland, president; H. Dorn Stewart, Armstrong Cork Company, Lancaster, Pa., first vice president; Elmer A. Lundberg, Pittsburgh Plate Glass Company, Pittsburgh, second vice president; T. D. Wakefield, The Wakefield Company, Vermillion, bio, secretary; and H. L. Cramer, Westinghouse Electric Company, Pittsburgh, treasurer. The 1958 meeting will be held in Miami.

This year's convention stressed the merchandising theme and two full days were devoted to considerations of merchandising and allied opportunities.

One half-day session featured three architects as speakers: Howard Fisher, A.I.A., Chicago, speaking on the World Construction Year program and its impact on manufacturers; Elliot Whitaker, A.I.A., Department of Architecture, Ohio State University, on teaching sales representatives design appropriateness; and Charles Haines, A.I.A. of Voorhees, Walker, Smith and Smith, New York, on the architect-engineer team.

A new approach this year to the solution of individual problems involved a series of roundtable discussions from which chairmen reported to the meeting as a whole. The producers at Louisville also heard explanations of the Council's technical bulletin operations, the TV program "Building America," the Waterama tour being scheduled to supplant the Caravans, development of the specifications data service and other Council activities.

### ATTENTION ON LABOR AS A.G.C. MEETS IN SEATTLE

Fred W. Heldenfels Jr., of Corpus Christi has received unanimous nomination as next president of the Associated General Contractors of America, Inc. His election at the 39th annual A.G.C. meeting in Dallas next February was virtually assured in September at Seattle, where his nomination was not opposed. He is vice president of the national organization of contractors.

The general contractors held the midyear meeting of their governing and advisory boards at Seattle, nominating James W. Cawdry of that city as next year's vice president. Approximately 500 attended

Attention at the meeting centered on a report of the Labor Committee, which discussed effects of the McClellan committee investigations in Congress. The (Continued on page 354)



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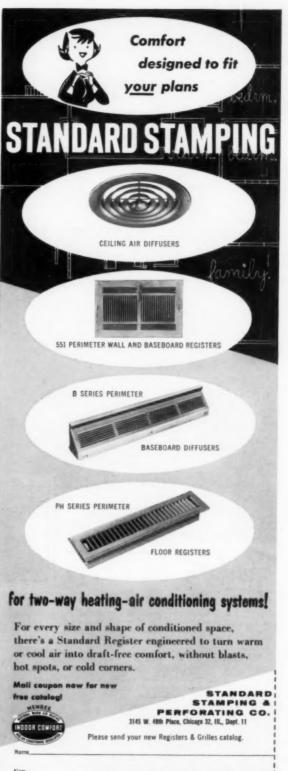
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#### THE RECORD REPORTS WASHINGTON TOPICS

(Continued from page 352)

report noted said that responsible labor leaders from all segments of the labor movement are disturbed by the revelations "which have shown an attitude of disregard both for the working man and the public in general."

Since it is anticipated the hearings will continue at least another year and perhaps longer, the report continued, it is certain that the entire picture, when unfolded, will do considerable damage to the prestige of labor officials, both in the eyes of the public and in Congress. "This comes at a time when organized labor is bringing pressure on Congress for legislation to its liking."

Seriously concerned with the Budget Bureau's restrictive allocation of appropriated construction funds to Federal agencies, the A.G.C. heavy construction and railroad contractors' division called for "minimizing" the limitations. Otherwise, it was argued, inequities to the contractor and higher ultimate cost to the government will result.

The Building Contractors' Division reported to the midvear sessions that most building categories were sharing in the record-breaking construction volume currently underway except in the residential category, which was said to be off seven per cent from the 1956 midyear point

#### INTEREST RATE LIMIT OFF ON LEASE-PURCHASE JOBS

The interest rate limitation of four per cent which had been regarded as the main bottleneck of the lease-purchase program will no longer be imposed. General Services Administrator Franklin G. Floete announced last month that financing bids on 10 approved projects would be solicited on the basis of the lowest interest rate "available and judged reasonable under the circumstances of each project."

Congress permitted the lease-purchase act to expire last summer, but there were some 90 projects already approved which could move forward if financing could be found. A \$1 million post office and Federal office structure in Lafayette, La., may be one of the first in the list to go forward. Architectural plans have been approved and when working drawings are completed, GSA will seek local financing sources.

Congress has appropriated \$20 million for expenditure in fiscal 1958 on architectural work and site planning, but only those projects previously approved by the Public Works Committees remain in the program.

#### FARM HOUSING PROBLEMS: FUNDS VOTED FOR STUDY

The Housing and Home Finance Agency now can make a meager beginning on a sizeable farm research study authorized by Congress for the fiscal years 1958 and 1959. In a last-minute action, the agency was voted \$75,000 for the current fiscal period.

It was better than the agency had fared on some previous occasions when Congress had authorized programs but neglected to provide a penny for carrying them out. This had been particularly true with research, it seems.

Under terms of the 1957 act, HHFA will develop data and information on the adequacy of existing farm housing, the (Continued on page 356)

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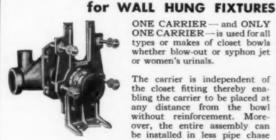
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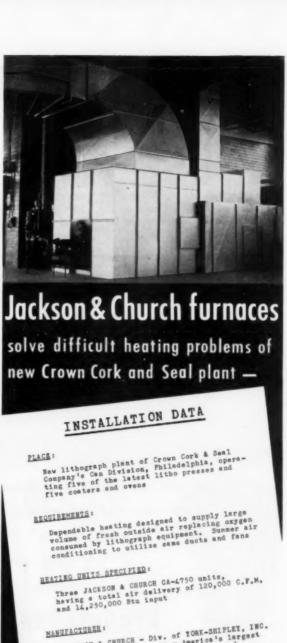
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## THE RECORD REPORTS WASHINGTON TOPICS

(Continued from page 354)

nature and extent of current and prospective needs for farm housing, the problems faced by farmers in purchasing, altering, repairing and replacing farm dwellings, the interrelation of farm housing problems and the problems of housing in urban and suburban areas, and any other matters bearing on the general question. Land grant colleges will carry out the study with grants supplied by the HHFA, not to exceed \$300,000 each. The program has been authorized for two years.

#### ADDENDA

The 1956 typical property improvement loan of \$492 made by an approved financial institution and insured by FHA under the law's Title II established a new record high in net proceeds to the borrower. By type of structure im-

proved, the single-family residence again ranked first. Insulation and structural additions and repairs led types of improvement, each with 18 per cent of the total. The historic upward trend in the amount of the typical insured property improvement loan continued last year, the ninth time in the 11 postwar years that size of loan has increased. The average \$492 net to the borrower last year was six per cent above the \$464 in 1955 and 50 per cent greater than the 1946 figure.

Much interest has been expressed in the rental provisions of the law making special provisions for the elderly (Section 203) by labor unions, veterans' organizations, professional and trade associations, local governing bodies, and other groups throughout the country, the FHA reported. A special representative was sent to work with field office staffs to acquaint FHA personnel thoroughly with possibilities of the new program. A special study was made of architectural features desirable in housing for elderly persons. At the end of 1956 it was apparent, the agency said, that the shelter-for-aging part of the overall FHA activities could be expected to develop into a significant force in helping to improve housing conditions for the elderly generally.

The Building Research Institute is scheduling the first major industry conference on adhesives and sealants in building construction for December 4 and 5 at the Shoreham Hotel in Washington, D. C. Executive Director William Scheick said the research conference had been requested by Institute members. It will be open to the public. With 27 sponsors, the conference will focus attention on the widespread interest in uses of adhesives and sealants in building construction and in the fabrication of building components. Experts will report on all sealants and adhesives currently being used in home building, in light construction and in larger buildings of all kinds.

A Federal government spokesman warned against an impression that skilled manpower shortages have been solved just because some defense orders have been cancelled. Dr. Howard L. Bevis, chairman of the President's Committee on Scientists and Engineers, predicted that the scarcity of scientists, engineers and skilled technicians would continue to be a national problem of major proportions at least until 1965.

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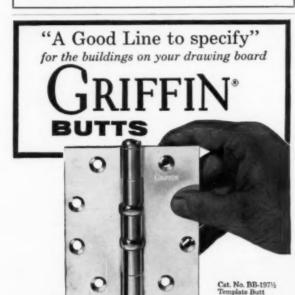
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#### assistant THE RECORD REPORTS REVIEWING THE RECORD

Footnotes to architectural history. from the Architectural Record of

The estrangement between architecture and engineering was H. W. Frohne's plaint in the July issue. It was his contention that buildings regarded as esthetically "the best" in other periods could be found as worthy on their structural merits: architects then, he said, had known engineering and had "regarded it rather as a part of rational architectural composition than as an exact science which is to set down only the formulae and figures." Attempting to define the roles of architecture and engineering. and to give them a relationship which would enable the architects and the engineers to cooperate more successfully. Mr. Frohne wrote, "Structural engineering in the broadest sense concerns the architects of today from what might be called a qualitative point of view. It is for him the art of designing the structure of his architecture in an idiomatic and esthetic manner. It . . . gives him a freedom in designing which he cannot safely exercise without this engineering knowledge as a basis. And now comes the engineer's side of the problem, which, while it must partake of the qualitative to produce the most satisfactory results. is chiefly quantitative in nature. . . The distinction between qualitative and quantitative engineering is not one between theory and practice, but rather between the art and the science of engineering, between how for the architect, and how much for the engineer."

Another New York razing depressed a writer in the August issue: the "old" Union Theological Seminary on Park (Continued on page 362)



Louis Sullivan, circa 1887: the Dooley Building, in Salt Lake City, shown in a July report on architecture in that city



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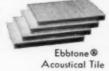


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### THE RECORD REPORTS REVIEWING THE RECORD

(Continued from page 358)



Avenue was being torn down after less than a generation of service. "Truly a particularly ruthless fate seems to have pursued the monuments of the Gothic revival in New York," said the RECORD. "In secular work, the Academy of Design, the Brooklyn Academy of Music, the old Produce Exchange, the old buildings of Columbia in Madison Avenue and this present Union Theological Seminary were without doubt among its chief successes. Not one of them has survived its architect. The workers are with us, but their work is gone." Some of these buildings had disappeared leaving not even a photograph behind; to forestall that "calamity," at least, the RECORD took and published this illustration.



William Le Baron Jenney, the first architect to build a skyscraper, died June 15, 1907, in Los Angeles. The obituary run in the August issue revealed other triumphs in a career crowned with the fact of the Home Insurance Building. Jenney had, during the Civil War, served as engineer on General Grant's staff, and later as chief engineer under General Sherman at the siege of Vicksburg. But the Home Insurance Building was the big thing — "It not only introduced the steel skeleton construction to the world, and was the first building in the United States to use steel beams in

(Continued on page 366)

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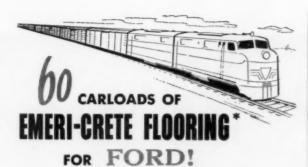
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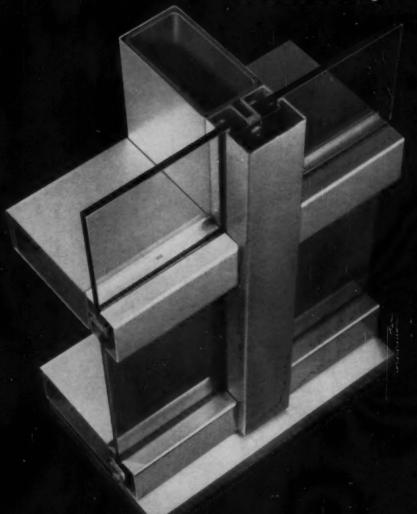
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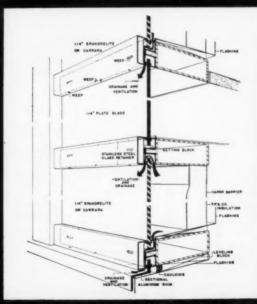
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Education Building for First Baptist Church Magnolia, Ark. Architect: Ginocchio, Cromwell & Associates Little Rock, Ark.

Union Federal Savings & Loan Building Baton Rouge, La. Architect: A. Hays Town Baton Rouge, La.

Colonial Provision Company Boston, Mass. Architect: Henschein, Everds & Crombie Chicago, III.

Avon Products Building Morton Grove, III. Architect: Skidmore, Owings & Merrill New York, N. Y.

Freeport Dial Office Building Freeport, III. Architect: Holabird, Root & Burgee Chicago, III.

Motorola Electronics Facility Building Phoenix, Ariz. Architect: Edward L. Varney, Associates Phoenix, Ariz.

D. J. Kaufman, Inc. Washington, D. C. Architect: David Baker Washington, D. C. North Side Junior High School Omaha, Nebr. Leo A. Daty, Architect, Omaha, Nebr.

#### UNDER CONSTRUCTION

Louisiana State Library
Baton Rouge, La.
Architect: Burk & Desmond
New Orleans, La.
Youngstown Sheet & Tube Co.
Youngstown, Ohio
Garfield, Harris, Robinson & Schafer, Architects,
Cleveland, Ohio

Homestead Hospital Homestead, Pa. Press C. and William C. Dowler, Architects, Pittsburgh, Pa.

Newton D. Baker Memorial Building Western Reserve University, Cleveland, Ohio Garfield, Harris, Schafer, Flynn & Williams, Architects, Cleveland, Ohio

Farm Bureau Insurance Co. Concord, N. H. Alonzo J. Harriman, Inc., Architect. Auburn, Maine

Glenn L. Martin Building Orlando, Fla. Architect: Connell, Pierce, Garland & Friedman & Associates Miami, Fla.

Continental Can Company Three Rivers, Mich. Architect: Schmidt, Garden & Erikson Chicago, III.

Boston University Public Relations Boston, Mass. Architect: Richmond & Goldberg Boston, Mass.

Chevrolet Motor Division Zone Office and Parts Division Jacksonville, Fla. Argonaut Realty Division, Architects, Detroit, Mich. Hartford County Mutual Fire Insurance Co.

Hartford County Mutual Fire Insurance Co. Hartford, Conn. Sherwood, Mills & Smith, Architects, Stamford, Conn.

Gibraltar Savings & Loan Building Houston, Texas Grecian & Brogniez, Architects, Houston, Texas

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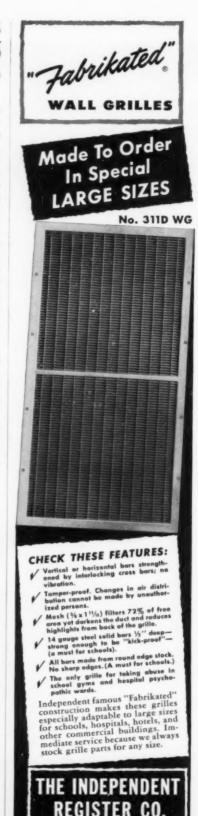
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CITY	ZONE STATE

### THE RECORD REPORTS REVIEWING THE RECORD

(Continued from page 362)

its construction," the article said, "but it also added a long list to the requirements of a fine office building, such as wind bracing, thorough fire-proofing, rapid running and safe elevator cars, light and well-ventilated rooms and corridors, fan lights along the corridor side of the rooms, adding to the light of the corridor and to the ventilation of the rooms, electric plant, the offices provided with tile vaults handsome in their appointments, a system of plumbing of the highest modern type, a large, elegantly-appointed toilet room on one of the upper floors in constant charge of a janitor, a barber shop, etc. All these appointments are now common to all good office buildings, but they were first used in the West in the Home Insurance Building, and many of them, like the metal elevator cars and the office vaults, were invented by Mr. Jenney for that building." In 1897, the Bessemer Steamship Company gave Mr. Jenney what must be a unique architectural award by naming one of their ships the "W.L.B. Jenney" as a tribute to his "distinguished services in connection with the invention and introduction of lofty steel skeleton construction of buildings."

Jules Verne incarnate: in France, it was reported by Frederic Lees in the September RECORD, M. Knap of Troyes had attacked the problems of electricity and the worsening servant situation head-on. At his "Villa Feria Electra." he had installed a number of appliances which astounded Mr. Lees, who was apparently pretty shaken to begin with when he was admitted through a gate with no attendant after talking to his host over the intercom. Servants were invisible at dinner, too, though belowstairs they placed food on the dumbwaiters which delivered it to an electric lazy-susan-type track on the table. Among M. Knap's other wonders: automatic ventilation ("a gentle breeze came from beneath the table - a breeze scented by its passage over perfumed water"), an electric range, washing machine and rinser, and kitchen equipment ("a mincing machine, a miniature churn for the production of fresh butter at a moment's notice, a machine for making mayonnaise sauce, another for grinding coffee, and a fifth for polishing knives").



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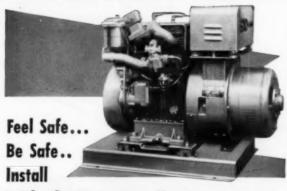
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#### REQUIRED READING

(Continued from page 58)

One example shows the increased profit that went to a builder who wisely reserved a percentage of land for commercial and civic development which, at the same time, provided for its residents the required amenities for a full way of life.

The kind of community house builders should strive to create should, according to the authors, take the following points into consideration: (1) A good house is not enough for a good life. (2) The logical community is related to the place of worship of its residents. (3) The complete community provides facilities for education, worship, shopping and recreation. (4) The liveable community is based on considerations for pleasant esthetic experiences: (5) The wellplanned community allows its families to live conveniently, comfortably and safely. (6) The well-conceived community is an integral part of the over-all city or regional plan.

Prospective house buyers would certainly be easier to sell this total kind of community, since buyers are not apt to resist a better way of life. The authors think far-sighted builders will recognize this and plan accordingly.

Even a small-scale builder can provide complete communities by employing one of four suggested methods. First, he might buy lots which are a segment of an existing total community, or secondly, lots which are a segment of a proposed total community. Third, he might join forces with a group of small builders and as a team they could develop the total community. Fourth, a team of small builders could commission the best available talent in the field of land and community development, to the advantage of everyone participating.

Several plans, sketches and photographs (rather choppy) illustrate proposals for related communities, solutions to site problems (landscaping, roads, sun control, privacy, etc.), and a remarkably inspiring collection of builder houses, many of which were designed by the authors.

It is good to discover such a constructive appraisal of the mass housing situation. Jones and Emmons have established themselves as pioneers in an effort to make the best and the most, architecturally, of what they think is inevitable, economically, on the American housing scene.



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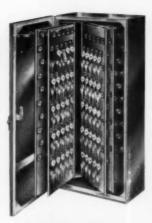
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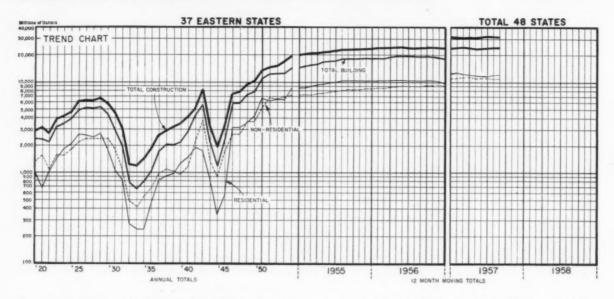
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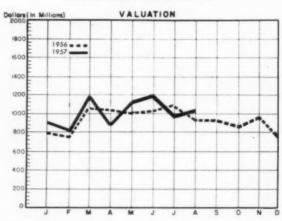
#### BUILDING UP, HEAVY ENGINEERING OFF

A 34 per cent decline in heavy engineering contracts in August offset gains of eight per cent in nonresidential building and five per cent in residential to leave the total for the U.S. of August contracts for future construction five per cent below August 1956, F. W. Dodge Corporation reported. The cumulative total for the first eight months of 1957, at \$22,676,652,000, was two per cent ahead of the corresponding period last year, with the nonresidential category up three per cent and residential down one per cent; for the eight-month period, heavy engineering gained seven per cent. Leading nonresidential building types in terms of dollar volume for eight months of 1957 were commercial buildings (\$2,318,332,000); educational and science buildings (\$1,994,684,000); manufacturing buildings (\$1,581,220,000); hospital buildings (\$603,872,000); and religious buildings (\$498,468,000). In terms of their percentage change compared with the 1956 period, hospitals made the largest gain (38 per cent); commercial and religious buildings were next (eight per cent each); and education and science buildings next (four per cent). In August, manufacturing buildings were up six per cent over August 1956.

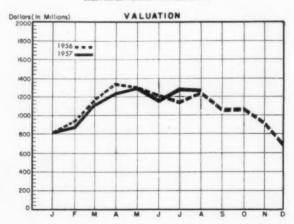
#### F. W. Dodge Corporation HOSPITAL BUILDINGS Construction Contracts—37 Eastern States Valuation (in thousands) Monthly Monthly Annual Annual Year Total Year Total Average Average 152,206 1951 580.782 1929 12.683 48.398 443,709 1935 47,057 3,921 1952 36,142 94,864 7,905 1953 433,634 36,136 1943 110,718 9,226 1954 518,819 43,234 1947 192.014 16.001 1955 474 589 39.549 1950 655,184 54.598 559.024 1956 46.585 **Monthly Totals** 1956 1957 Jan. 49,737 Jan. 58,560 July 61,243 Feb. 18,830 39,442 Feb. 62,065 60,095 Aug. Aug. Mar. 25.527 Sept. 62,649 Mar. 53,781 8 mos. 517.597 Apr. 41,261 Oct. 58,828 Apr. 43,935 May 84,491 May 53,157 Nov. 44,272 June 51,333 Dec. 38,208 June 93,427 re the subject of Building Types Study No. 252 (pages 189-215).

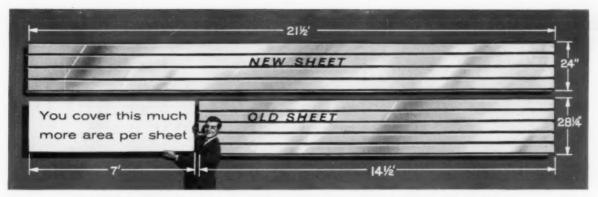
Charts by Dodge Statistical Research Service

#### NONRESIDENTIAL BUILDING



#### RESIDENTIAL BUILDING





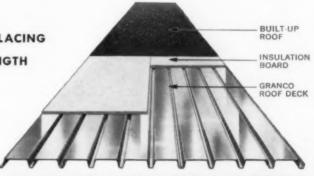
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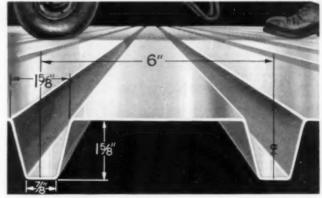
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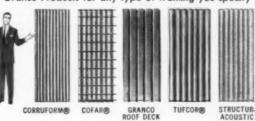


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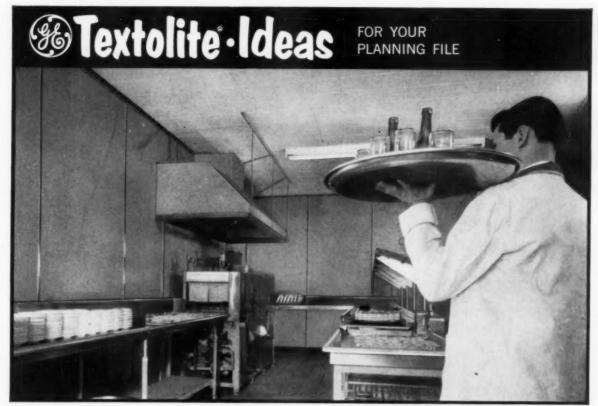
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